Presidential Address
ON
SOME ASPECTS OF BIOLOGY.

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SIR WILLIAM TURNER commenced by recalling the former meeting of the Association held in Bradford 27 years ago. He then referred to the deaths of two past presidents which had occurred since the Dover meeting—namely, those of the Duke of Argyll, president at Glasgow in 1855, and Sir J. W. Dawson, president at Birmingham in 1886. He then proceeded to lay down the qualities necessary for scientific method. In scientific research, he said, diligence and accuracy are fundamental qualities. ..... Scientific method consists, therefore, in close observation, frequently repeated so as to eliminate the possibility of erroneous seeing; in experiments checked and controlled in every direction in which fallacies might arise; in continuous reflection on the appearances and phenomena observed, and in logically reasoning out their meaning and the conclusions to be drawn from them. Were the method followed out in its integrity by all who are engaged in scientific investigations the time and labour expended in correcting errors committed by ourselves or by other observers and experimentalists would be saved and the volumes devoted annually to scientific literature would be materially diminished in size. Were it applied, as far as the conditions of life admit, to the conduct and management of human affairs we should not require to be told when critical periods in our welfare as a nation arise that we shall muddle through somehow. Recent experience has taught us that wise discretion and careful prevision are as necessary in the direction of public affairs as in the pursuit of science, and in both instances when properly exercised they enable us to reach with comparative certainty the goal which we strive to attain.

Sir William Turner then reminded his audience of the improvements in methods of observation which modern times had brought forth. A certain amount of gross anatomy had been known from very early times, but even down to the early part of this century but little more was known of the texture of the animal body than could be determined by the naked eye, assisted by a simple lens. Thus nerves, muscles, and tendons were known to be composed of fibres and blood- and lymph-vessels were known to be tubes. In 1830 Joseph Jackson Lister read a paper before the Royal Society upon the principles of the construction of achromatic object glasses for microscopes. One outcome of the increased penetrative powers of the microscope was Schwann's great cell theory announced in 1839. The enunciation of the fundamental principle that the elementary tissues consisted of cells constituted a step in the progress of biological science which will for ever stamp the century now drawing to a close with a character and renown equalling those which it has derived from the most brilliant discoveries in the physical sciences.

STRUCTURE OF CELLS.

Sir William Turner continued: A cell is a living particle, so minute that it needs a microscope for its examination; it grows in size, maintains itself in a state of activity, responds to the action of stimuli, reproduces its kind, and in the course of time it degenerates and dies. Let us glance at the structure of a cell to determine its constituent parts and the rôle which each plays in the function to be discharged. The original conception of a cell, based upon the study of the vegetable tissues, was a minute vesicle enclosed by a definite wall, which exercised chemical or metabolic change on the surrounding material and secreted into the vesicle its characteristic contents. A similar conception was at first also entertained regarding the cells of animal tissues; but as observations multiplied it was seen that numerous elementary particles, which were obviously in their nature cells, did not possess an enclosing envelope. A wall ceased to have a primary value as a constituent part of a cell, the necessary vesicular character of which, therefore, could no longer be maintained. The other constituent parts of a cell are the cell plasm, which forms the body of the cell, and the nucleus embedded in its substance. Notwithstanding the very minute size of the nucleus, which even in the largest cells is not more than $\frac{1}{300}$th inch in diameter, and usually is considerably smaller, its almost constant form, its well-defined sharp outline, and its power of resisting the action of strong reagents when applied to the cell, have from the period of its discovery by Robert Brown caused histologists to bestow on it much attention. Its structure and chemical composition; its mode of origin; the part which it plays in the formation of new cells, and its function in nutrition and secretion have been investigated. When examined under favourable conditions in its passive or resting state, the nucleus is seen to be bounded by a membrane which separates it from the cell plasm and gives it the characteristic sharp contour. It contains an apparently structureless nuclear substance, nucleoplasm or enchylema, in which are embedded one or more extremely minute particles called nucleoli, along with a network of exceedingly fine threads or fibres, which in the active living cell play an essential part in the production of new nuclei within the cell. In its chemical composition the nuclear substance consists of albuminous plastin and globulin and of a special material named nuclein, rich in phosphorus and with an acid reaction. The delicate network within the nucleus consists apparently of the nuclein, a substance which stains with carmine and other dyes, a property which enables the changes which take place in the network in the production of young cells to be more readily seen and followed out by the observer. The mode of origin of the nucleus and the part which it plays in the production of new cells have been the subject of much discussion. Schleiden, whose observations, published in 1838, were made on the cells of plants, believed that within the cell a nucleolus first appeared, and that around it molecules aggregated to form the nucleus. Schwann, again, whose observations were mostly made on the cells of animals, considered that an amorphous material existed in organised bodies, which he called "cytoblastema." It formed the contents of cells, or it might be situated free or external to them. He figuratively compared it to a mother liquor in which crystals are formed. Either in the cytoblastema within the cells or in that situated external to them, the aggregation of molecules around a nucleolus to form a nucleus might occur, and when once the nucleus had been formed in its turn it would serve as a centre of aggregation of additional molecules from which a new cell would be produced. He regarded, therefore, the formation of nuclei and cells as possible in two ways: one within pre-existing cells (endogenous cell-formation), the other in a free blastema lying external to cells (free cell-formation). In animals, he says, the endogenous method is rare and the customary origin is in an external blastema. Both Schleiden and Schwann considered that after the cell was formed the nucleus had no permanent influence on the life of the cell and usually disappeared. Under the teaching principally of Henle, the famous professor of anatomy in Göttingen, the conception of the free formation of nuclei and cells in a more or less fluid blastema by an aggregation of elementary granules and molecules obtained so much credence, especially amongst those who were engaged in the study of pathological processes, that the origin of cells within pre-existing cells was to a large extent lost sight of. That a parent cell was requisite for the production of new cells seemed to many investigators to be no longer needed. Without doubt this conception of free cell-formation contributed in no small degree to the belief, entertained by various observers, that the simplest plants and animals might arise, without pre-existing parents, in organic fluids destitute of life, by a process of spontaneous generation—a belief which prevailed in many minds almost to the present day. If, as has been stated, the doctrine of abiogenesis cannot be experimentally refuted, on the other hand it has not been experimentally proved. The burden of proof lies with those

who hold the doctrine, and the evidence that we possess is all the other way.

Apparently the first to recognise a multiplication of cells in plants by division, was von Mohl in 1835. Von Baer and others had recognised the germinal vesicle in the animal ovum before 1839 and Barry in 1839 and 1840 communicated two papers to the Royal Society describing the multiplication of cells in or of the ovum.

John Goodsir and his brother Harry in 1842 and 1845 described the cleavage of cell nuclei and Remak (1850–1855) confirmed the idea that the nucleus was the starting point for multiplication of cells. Finally Virchow in 1858 in his Cellular Pathology gave the death-blow to the theory of the free formation of cells in blastema and laid down his well-known formula, *Omnis cellula e cellulâ*.

KARYOKINESIS.

The nucleus in its passive or resting stage contains a very delicate network of threads or fibres. The first stage in the process of nuclear division consists in the threads arranging themselves in loops and forming a compact coil within the nucleus. The coil then becomes looser, the loops of threads shorten and thicken, and somewhat later each looped thread splits longitudinally into two portions. As the threads stain when colouring agents are applied to them, they are called chromatin fibres, and the loose coil is the chromosome (Waldeyer). As the process continues the investing membrane of the nucleus disappears and the loops of threads arrange themselves within the nucleus so that the closed ends of the loops are directed to a common centre, from which the loops radiate outwards and produce a star-like figure (aster). At the same time clusters of extremely delicate lines appear both in the nucleoplasm and in the body of the cell, named the achromatic figure, which has a spindle-like form with two opposite poles and stains much more feebly than the chromatic fibres. The loops of the chromatic star then arrange themselves in the equatorial plane of the spindle and bending round turn their closed ends towards the periphery of the nucleus and the cell. The next stage marks an important step in the process of division of the nucleus. The two longitudinal portions into which each looped thread had previously split now separate from each other, and whilst one part migrates to one pole of the spindle the other moves to the opposite pole and the free ends of each loop are directed towards its equator (metakinesis). By this division of the chromatin fibres and their separation from each other to opposite poles of the spindle two star-like chromatin figures are produced (dyaster). Each group of fibres thickens, shortens, becomes surrounded by a membrane, and forms a new or daughter nucleus (diaspirem). Two nuclei, therefore, have arisen within the cell by the division of that which had previously existed, and the expression formulated by Flemming—*omnis nucleus e nucleo*—is justified. Whilst this stage is in course of being completed the body of the cell becomes constricted in the equatorial plane of the spindle, and as the constriction deepens it separates into two parts, each containing a daughter nucleus, so that two nucleated cells have arisen out of a pre-existing cell. A repetition of the process in each of these cells leads to the formation of other cells, and although modifications in details are found in different species of plants and animals the multiplication of cells in the egg and in the tissues generally on similar lines is now a thoroughly established fact in biological science.

In the study of karyokinesis importance has been attached to the number of chromosomes in the nucleus of the cell. Flemming had seen in the salamander 24 chromosome fibres, which seems to be a constant number in the cells of epithelium and connective tissues. In other cells, again, especially in the ova of certain animals, the number is smaller, and 14, 12, four, and even two only have been described. The theory formulated by Boveri that the number of chromosomes is constant for each species, and that in the karyokinetic figures corresponding numbers are found in homologous cells, seems to be not improbable. In the preceding description I have incidentally referred to the appearance in the proliferating cell of an achromatic spindle-like figure. Although this was recognised by Fol in 1873 it is only during the last 10 or 12 years that attention has been paid to its more minute arrangements and possible signification in cell-division. The pole at each end of the spindle lies in the cell plasm which surrounds the nucleus. In the centre of each pole is a somewhat opaque spot (central body) surrounded by a clear space, which, along with the spot, constitutes the centrosome or the sphere of attraction. From each centrosome extremely delicate lines may be seen to radiate in two directions. One set extends towards the pole at the opposite end of the spindle and, meeting or coming into close proximity with radiations from it, constitutes the body of the spindle, which, like a perforated mantle, forms an imperfect envelope around the nucleus during the process of division. The other set of radiations is called the polar and extends in the region of the pole towards the periphery of the cell. The question has been much discussed whether any constituent part of the achromatic figure, or the entire figure, exists in the cell as a permanent structure in its resting phase, or if it is only present during the process of karyokinesis. During the development of the egg the formation of young cells, by division of the segmentation nucleus, is so rapid and continuous that the achromatic figure, with the centrosome in the pole of the spindle, is a readily recognisable object in each cell. The polar and spindle-like radiations are in evidence during karyokinesis and have apparently a temporary endurance and function. On the other hand, van Beneden and Boveri were of opinion that the central body of the centrosome did not disappear when the division of the nucleus came to an end, but that it remained as a constituent part of a cell lying in the cell plasm near to the nucleus. Flemming has seen the central body with its sphere in leucocytes, as well as in epithelial cells and those of other tissues. Subsequently Heidenhain and other histologists have recorded similar observations. It would seem, therefore, as if there were reason to regard the centrosome, like the nucleus, as a permanent constituent of a cell. This view, however, is not universally entertained. If not always capable of demonstration in the resting stage of a cell it is doubtless to be regarded as potentially present and ready to assume, along with the radiations, a characteristic appearance when the process of nuclear division is about to begin. One can scarcely regard the presence of so remarkable an appearance as the achromatic figure without associating with it an important function in the economy of the cell. As from the centrosome at the pole of the spindle both sets of radiations diverge, it is not unlikely that it acts as a centre or sphere of energy and attraction. By some observers the radiations are regarded as substantive fibrillar structures, elastic or even contractile in their properties. Others, again, look upon them as morphological expressions of chemical and dynamical energy in the protoplasm of the cell body. On either theory we may assume that they indicate an influence, emanating, it may be, from the centrosome and capable of being exercised both on the cell plasm and on the nucleus contained in it. On the contractile theory the radiations which form the body of the spindle, either by actual traction of the supposed fibrillæ or by their pressure on the nucleus which they surround, might impel during karyokinesis the dividing chromosome elements towards the poles of the spindle to form there the daughter nuclei. On the dynamical theory the chemical and physical energy in the centrosome might influence the cell plasm and the nucleus and attract the chromosome elements of the nucleus to the poles of the spindle. The radiated appearance would therefore be consequent and attendant on the physico-chemical activity of the centrosome. One or other of these theories may also be applied to the interpretation of the significance of the polar radiations.

CELL PLASM.

In the cells of plants, in addition to the cell wall, the cell body and the cell juice require to be examined. The material of the cell body, or the cell contents, was named by von Mohl (1846) "protoplasm," and consisted of a colourless tenacious substance which partly lined the cell wall (primordial utricle), and partly traversed the interior of the cell as delicate threads enclosing spaces (vacuoles) in which the cell juice was contained. In the protoplasm the nucleus was embedded. Nägeli, about the same time, had also recognised the difference between the protoplasm and the other contents of vegetable cells, and had noticed its nitrogenous composition. Though the analogy with a closed bladder or vesicle could no longer be sustained in the animal tissues the name "cell" continued to be retained for descriptive purposes and the body of the cell was spoken of as a more or less soft substance enclosing a nucleus (Leydig). In 1861 Max Schultze adopted for the substance forming the body of the animal cell the term "protoplasm." He defined a cell to be a particle of protoplasm in the substance of

which a nucleus was situated. He regarded the protoplasm, as indeed had previously been pointed out by the botanist Unger, as essentially the same as the contractile sarcode which constitutes the body and pseudopodia of the amœba and other rhizopoda. As the term "protoplasm," as well as that of "bioplasm" employed by Lionel Beale in a somewhat similar though not precisely identical sense, involves certain theoretical views of the origin and function of the body of the cell it would be better to apply to it the more purely descriptive term "cytoplasm" or "cell plasm." Schultze defined protoplasm as a homogeneous, glassy, tenacious material, of a jelly-like or somewhat firmer consistency, in which numerous minute granules were embedded. He regarded it as the part of the cell especially endowed with vital energy, whilst the exact function of the nucleus could not be defined. Based upon this conception of the jelly-like character of protoplasm the idea for a time prevailed that a structureless, dimly granular jelly or slime destitute of organisation possessed great physiological activity and was the medium through which the phenomena of life were displayed.

More accurate conceptions of the nature of the cell plasm soon began to be entertained. Brücke recognised that the body of the cell was not simple but had a complex organisation. Flemming observed that the cell plasm contained extremely delicate threads which frequently formed a network the interspaces of which were occupied by a more homogeneous substance. Where the threads crossed each other granular particles (mikrosomen) were situated. Bütschli considered that he could recognise in the cell plasm a honeycomb like appearance as if it consisted of excessively minute chambers in which a homogeneous more or less fluid material was contained. The polar and spindle-like radiations visible during the process of karyokinesis, which have already been referred to, and the presence of the centrosome, possibly even during the resting stage of the cell, furnished additional illustrations of differentiation within the cell plasm. In many cells there appears also to be a difference in the character of the cell plasm which immediately surrounds the nucleus and that which lies at and near the periphery of the cell. The peripheral part (ektoplasma) is more compact and gives a definite outline to the cell, although not necessarily differentiating into a cell membrane. The inner part (endoplasma) is softer, and is distinguished by a more distinct granular appearance, and by containing the products specially formed in each particular kind of cell during the nutritive process. By the researches of numerous investigators on the internal organisation of cells in plants and animals a large body of evidence has now been accumulated which shows that both the nucleus and the cell plasm consist of something more than a homogeneous, more or less viscid, slimy material. Recognisable objects in the form of granules, threads, or fibres can be distinguished in each. The cell plasm and the nucleus respectively are therefore not of the same constitution throughout but possess polymorphic characters the study of which in health and the changes produced by disease will for many years to come form important matters for investigation.

FUNCTION OF CELLS.

Sir William Turner then shortly sketched the various functions of cells and gave a brief retrospect of the researches of Schwann, Henle, the Goodsirs, and others who had studied and are studying the subject. He continued—

NERVE CELLS.

Of recent years great attention has been paid to the intimate structure of nerve cells and to the appearance which they present when in the exercise of their functional activity. A nerve cell is not a secreting cell, that is, it does not derive from the blood or surrounding fluid a pabulum which it elaborates into a visible, palpable secretion characteristic of the organ of which the cell is a constituent element, to be in due course discharged into a duct which conveys the secretion out of the gland. Nerve cells, through the metabolic changes which take place in them in connexion with their nutrition are associated with the production of the form of energy specially exhibited by animals which possess a nervous system, termed nerve energy. It has long been known that every nerve cell has a body in which a relatively large nucleus is situated. A most important discovery was the recognition that the body of every nerve cell had one or more processes growing out from it. More recently it has been proved, chiefly through the researches of Schultze, His, Golgi, and Ramon y Cajal, that at least one of the processes, the axon of the nerve cell, is continued into the axial cylinder of a nerve fibre and that in the multipolar nerve cell the other processes, or dendrites, branch and ramify for some distance away from the body. A nerve fibre is therefore an essential part of the cell with which it is continuous, and the cell, its processes, the nerve fibre, and the collaterals which arise from the nerve fibre collectively form a neuron or structural nerve unit (Waldeyer). The nucleated body of the nerve cell is the physiological centre of the unit. The cell plasm occupies both the body of the nerve cell and its processes. The intimate structure of the plasm has, by improved methods of observation introduced during the last eight years by Nissl and conducted on similar lines by other investigators, become more definitely understood. It has been ascertained that it possesses two distinct characters which imply different structures. One of these stains deeply on the addition of certain dyes, and is named "chromophile" or "chromatic substance"; the other, which does not possess a similar property, is the "achromatic network." The chromophile is found in the cell body and the dendritic processes but not in the axon. It occurs in the form of granular particles, which may be scattered throughout the plasm or aggregated into little heaps which are elongated or fusiform in shape and appear as distinct coloured particles or masses. The achromatic network is found in the cell body and the dendrites and is continued also into the axon, where it forms the axial cylinder of the nerve fibre. It consists apparently of delicate threads or fibrillæ, in the meshes of which a homogeneous material, such as is found in cell plasm generally, is contained. In the nerve cells, as in other cells, the plasm is without doubt concerned in the process of cell nutrition. The achromatic fibrillæ exercise an important influence on the axon or nerve fibre with which they are continuous, and probably they conduct the nerve impulses which manifest themselves in the form of nerve energy. The dendritic processes of a multipolar nerve-cell ramify in close relation with similar processes branching from other cells in the same group. The collaterals and the free end of the axon fibre process branch and ramify in association with the body of a nerve cell or of its dendrites. We cannot say that these parts are directly continuous with each other to form an inter-cellular network, but they are apparently in apposition, and through contact exercise influence one on the other in the transmission of nerve impulses. There is evidence to show that in the nerve cell the nucleus, as well as the cell plasm, is an effective agent in nutrition. When the cell is functionally active, both the cell body and the nucleus increase in size (Vas, G. Mann, Lugaro); on the other hand, when nerve cells are fatigued through excessive use, the nucleus decreases in size and shrivels; the cell plasm also shrinks, and its coloured or chromophile constituent becomes diminished in quantity, as if it had been consumed during the prolonged use of the cell (Hodge, Mann, Lugaro). It is interesting also to note that in hibernating animals in the winter season, when their functional activity is reduced to a minimum, the chromophile in the plasm of the nerve cells is much smaller in amount than when the animal is leading an active life in the spring and summer (G. Levi). When a nerve cell has attained its normal size it does not seem to be capable of reproducing new cells in its substance by a process of karyokinesis, such as takes place when young cells arise in the egg and in the tissues generally. It would appear that nerve cells are so highly specialised in their association with the evolution of nerve energy, that they have ceased to have the power of reproducing their kind, and the metabolic changes both in cell plasm and nucleus are needed to enable them to discharge their very peculiar function. Hence it follows that when a portion of the brain or other nerve centre is destroyed the injury is not repaired by the production of fresh specimens of their characteristic cells, as would be the case in injuries to bones and tendons. In our endeavours to differentiate the function of the nucleus from that of the cell plasm, we should not regard the former as concerned only in the production of young cells, and the latter as the exclusive agent in growth, nutrition, and, where gland cells are concerned, in the formation of their characteristic products. As regards cell reproduction also, though the process of division begins in the nucleus in its chromosome constituents, the achromatic figure in the cell plasm undoubtedly

plays a part, and the cell plasm itself ultimately undergoes cleavage. A few years ago the tendency amongst biologists was to ignore or attach but little importance to the physiological use of the nucleus in the nucleated cell, and to regard the protoplasm as the essential and active constituent of living matter; so much so, indeed, was this the case that independent organisms regarded as distinct species were described as consisting of protoplasm destitute of a nucleus; also that scraps of protoplasm separated from larger nucleated masses could, when isolated, exhibit vital phenomena. There is reason to believe that a fragment of protoplasm, when isolated from the nucleus of a cell, though retaining its contractility and capable of nourishing itself for a short time, cannot increase in amount, act as a secreting structure, or reproduce its kind: it soon loses its activity, withers, and dies. In order that these qualities of living matter should be retained a nucleus is by most observers regarded as necessary (Nussbaum, Gruber, Haberlandt, Korschelt), and for the complete manifestation of vital activity both nucleus and cell plasm are required.

BACTERIA.

The observations of Cohn, made about 30 years ago, and those of De Bary shortly afterwards, brought into notice a group of organisms to which the name "bacterium" or "microbe" is given. They were seen to vary in shape: some were rounded specks called cocci, others were straight rods called bacilli, others were curved or spiral rods, vibrios or spirillæ. All were characterised by their extreme minuteness, and required for their examination the highest powers of the best microscopes. Many bacteria measure in their least diameter not more than $\frac{1}{25000}$th of an inch, $\frac{1}{10}$th the diameter of a human white blood corpuscle. Through the researches of Pasteur, Lord Lister, Koch, and other observers bacteria have been shown to play an important part in nature. They exercise a very remarkable power over organic substances, especially those which are complex in chemical constitution, and can resolve them into simpler combinations. Owing to this property some bacteria are of great economic value and without their agency many of our industries could not be pursued; others again, and these are the most talked of, exercise a malign influence in the production of the most deadly diseases which afflict man and the domestic animals.

Great attention has been given to the structure of bacteria and to their mode of propagation. When examined in the living state and magnified about 2000 times, a bacterium appears as a homogeneous particle, with a sharp definite outline, though a membranous envelope or wall, distinct from the body of the bacterium, cannot at first be recognised, but when treated with reagents a membranous envelope appears, the presence of which without doubt gives precision of form to the bacterium. The substance within the membrane contains granules which can be dyed with colouring agents. Owing to their extreme minuteness it is difficult to pronounce an opinion on the nature of the chromatine granules and the substance in which they lie. Some observers regard them as nuclear material, invested by only a thin layer of protoplasm, on which view a bacterium would be a nucleated cell. Others consider the bacterium as formed of protoplasm containing granules capable of being coloured, which are a part of the protoplasm itself and not a nuclear substance. On the latter view bacteria would consist of cell plasm enclosed in a membrane and destitute of a nucleus. Whatever be the nature of the granule-containing material each bacterium is regarded as a cell, the minutest and simplest living particle capable of an independent existence that has yet been discovered. Bacteria cells, like cells generally, can reproduce their kind. They multiply by simple fission, probably with an ingrowth of the cell wall, but without the karyokinetic phenomena observed in nucleated cells. Each cell gives rise to two daughter cells, which may for a time remain attached to each other and form a cluster or a chain, or they may separate and become independent isolated cells. The multiplication, under favourable conditions of light, air, temperature, moisture, and food, goes on with extraordinary rapidity, so that in a few hours many thousand new individuals may arise from a parent bacterium.

Connected with the life-history of a bacterium cell is the formation in its substance, in many species and under certain conditions, of a highly refractile shiny particle called a "spore." At first sight a spore seems if it were the nucleus of the bacterium cell, but it is not always present when multiplication by cleavage is taking place and when present it does not appear to take part in the fission. On the other hand, a spore, from the character of its envelope, possesses great power of resistance, so that dried bacteria, when placed in conditions favourable to germination, can through their spores germinate and resume an active existence. Spore formation seems, therefore, to be a provision for continuing the life of the bacterium under conditions which, if spores had not formed, would have been the cause of its death. The time has gone by to search for the origin of living organisms by a spontaneous aggregation of molecules in vegetable or other infusions or from a layer of formless primordial slime diffused over the bed of the ocean. Living matter during our epoch has been, and continues to be, derived from pre-existing living matter, even when it possesses the simplicity of structure of a bacterium, and the morphological unit is the cell.

[Sir William Turner then referred to the structure and development of the tissues and organs, and mentioned the names of those who had been foremost in the study of this subject. Such were Wolff, Hofmeister, Julius von Sachs, William Bowman, F. M. Balfour, and the veteran Albert von Kölliker who still lives. General morphology, which must be studied along with the origin and structure of tissues, had among those who had worked at it such thinkers as Goethe, Richard Owen, Reichert, Ralke, and Huxley. Sir William Turner continued:]

The morphological characters exhibited by a plant or animal tend to be hereditarily transmitted from parents to offspring and the species is perpetuated. In each species the evolution of an individual, through the developmental changes in the egg, follows the same lines in all the individuals of the same species which possess, therefore, in common the features called specific characters. The transmission of the characters is due, according to the theory of Weismann, to certain properties possessed by the chromosome constituents of the segmentation nucleus in the fertilised ovum, named by him the germ plasm, which is continued from one generation to another and impresses its specific character on the egg and on the plant or animal developed from it. The special tissues which build up the bodies of the more complex organisms are evolved out of cells at first simple in form. During the evolution of the individual, cells become modified or differentiated in structure and function, and so long as the differentiation follows certain prescribed lines the morphological characters of the species are preserved. We can readily conceive that, as the process of specialisation is going on, modifications or variations in groups of cells and the tissues derived from them, notwithstanding the influence of heredity, may in an individual diverge so far from that which is characteristic of the species as to assume the arrangements found in another species, or even in another order. Anatomists had, indeed, long recognised that variations from the customary arrangement of parts occasionally appeared and they described such deviations from the current descriptions as irregularities.

DARWINIAN THEORY.

The signification of the variations which arise in plants and animals had not been apprehended until a flood of light was thrown on the entire subject by the genius of Charles Darwin, who formulated the wide-reaching theory that variations could be transmitted by heredity to younger generations. In this manner he conceived new characters would arise, accumulate, and be perpetuated which would in the course of time assume specific importance. New species might thus be evolved out of organisms originally distinct from them, and their specific characters would in turn be transmitted to their descendants. By a continuance of this process new species would multiply in many directions, until at length from one or more originally simple forms the earth would become peopled by the infinite varieties of plant and animal organisms which have in past ages inhabited, or do at present inhabit, our globe. The Darwinian theory may therefore be defined as heredity modified and influenced by variability. It assumes that there is an heredity quality in the egg which, if we take the common fowl for an example, shall continue to produce similar fowls. Under conditions, of which we are ignorant, which occasion molecular changes in the cells and tissues of the developing egg, variations might arise in the first instance probably slight, but becoming intensified in successive generations until at length the

descendants would have lost the characters of the fowl and have become another species. No precise estimate has been arrived at, and, indeed, one does not see how it is possible to obtain it, of the length of years which might be required to convert a variation capable of being transmitted into a new and definite specific character.

The circumstances which according to the Darwinian theory determined the perpetuation by hereditary transmission of a variety and its assumption of a specific character depended, it was argued, on whether it possessed such properties as enabled the plant or animal in which it appeared to adapt itself more readily to its environment—i.e., to the surrounding conditions. If it were to be of use the organism in so far became better adapted to hold its own in the struggle for existence with its fellows and with the forces of nature operating on it. Through the accumulation of useful characters the specific variety was perpetuated by natural selection so long as the conditions were favourable for its existence and it survived as being the best fitted to live. In the study of the transmission of variations which may arise in the course of development it should not be too exclusively thought that only those variations are likely to be preserved which can be of service during the life of the individual, or in the perpetuation of the species, and possibly available for the evolution of new species. It should also be kept in mind that morphological characters can be transmitted by hereditary descent, which, though doubtless of service in some bygone ancestor, are in the new conditions of life of the species of no physiological value. Our knowledge of the structural and functional modifications to be found in the human body, in connexion with abnormalities and with tendencies or predisposition to diseases of various kinds, teaches us that characters which are of no use, and, indeed, detrimental to the individual, may be hereditarily transmitted from parents to offspring through a succession of generations.

Since the conception of the possibility of the evolution of new species from pre-existing forms took possession of the minds of naturalists, attempts have been made to trace out the lines on which it has proceeded. The first to give a systematic account of what he conceived to be the order of succession in the evolution of animals was Ernst Haeckel of Jena, in a well-known treatise. Memoirs on special departments of the subject, too numerous to particularise, have subsequently appeared. The problem has been attacked along two different lines: the one by embryologists, of whom may be named Kowalewsky, Gegenbaur, Dohrn, Ray Lankester, Balfour, and Gaskell, who with many others have conducted careful and methodical inquiries into the stages of development of numerous forms belonging to the two great divisions of the animal kingdom. Invertebrates, as well as vertebrates, have been carefully compared with each other in the bearing of their development and structure on their affinities and descent, and the possible sequence in the evolution of the vertebrata from the invertebrata has been discussed. The other method pursued by palæontologists, of whom Huxley, Marsh, Cope, Osborne, and Traquair are prominent authorities, has been the study of the extinct forms preserved in the rocks and the comparison of their structure with each other and with that of existing organisms. In the attempts to trace the line of descent the imagination has not infrequently been called into play in constructing various conflicting hypotheses. Though from the nature of things the order of descent is, and without doubt will continue to be, ever a matter of speculation and not of demonstration, the study of the subject has been a valuable intellectual exercise and a powerful stimulant to research.

We know not as regards time when the fiat went forth, "Let there be Life, and there was Life." All we can say is that it must have been in the far-distant past, at a period so remote from the present that the mind fails to grasp the duration of the interval. Prior to its genesis our earth consisted of barren rock and desolate ocean. When matter became endowed with life, with the capacity of self-maintenance and of resisting external disintegrating forces, the face of nature began to undergo a momentous change. Living organisms multiplied, the land became covered with vegetation, and multitudinous varieties of plants, from the humble fungus and moss to the stately palm and oak, beautified its surface and fitted it to sustain higher kinds of living beings. Animal forms appeared, in the first instance simple in structure, to be followed by others more complex, until the mammalian type was produced. The ocean also became peopled with plant and animal organisms, from the microscopic diatom to the hugh leviathan. Plants and animals acted and reacted on each other, on the atmosphere which surrounded them, and on the earth on which they dwelt, the surface of which became modified in character and aspect. At last Man came into existence. His nerve-energy, in addition to regulating the processes in his economy which he possesses in common with animals, was endowed with higher powers. When translated into psychical activity it has enabled him throughout the ages to progress from the condition of a rude savage to an advanced stage of civilisation; to produce works in literature, art, and the moral sciences which have exerted, and must continue to exert, a lasting influence on the development of his higher being; to make discoveries in physical science; to acquire a knowledge of the structure of the earth, of the ocean in its changing aspects, of the atmosphere and the stellar universe, of the chemical composition and physical properties of matter in its various forms, and to analyse, comprehend, and subdue the forces of nature. By the application of these discoveries to his own purposes man has, to a large extent, overcome time and space; he has studded the ocean with steamships, girdled the earth with the electric wire, tunnelled the lofty Alps, spanned the Forth with a bridge of steel, invented machines and founded industries of all kinds for the promotion of his material welfare, elaborated systems of government fitted for the management of great communities, formulated economic principles, obtained an insight into the laws of health, the causes of infective diseases, and the means of controlling and preventing them.

When we reflect that many of the most important discoveries in abstract science and in its applications have been made during the present century, and indeed since the British Association held its first meeting in the ancient capital of your county 69 years ago, we may look forward with confidence to the future. Every advance in science provides a fresh platform from which a new start can be made. The human intellect is still in process of evolution. The power of application and of concentration of thought for the elucidation of scientific problems is by no means exhausted. In science is no hereditary aristocracy. The army of workers is recruited from all classes. The natural ambition of even the private in the ranks to maintain and increase the reputation of the branch of knowledge which he cultivates affords an ample guarantee that the march of science is ever onwards, and justifies us in proclaiming for the next century, as in the one fast ebbing to a close, that great is science and it will prevail.

A Clinical Lecture

ON

THE EXPECTANCY OF LIFE IN CASES OF CANCER OF THE BREAST.

Delivered at University College Hospital on July 14th, 190

BY ARTHUR E. BARKER, F.R.C.S. ENG.,

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GENTLEMEN,—The gloom which has hung over the question of the expectancy of life in cancer of the breast has hitherto been fully justified. We know from the experience of the older surgeons that the majority of women afflicted with this disease are doomed if untreated by operation to death within two years. And even those who in former years submitted to the removal of the breast for this disease in most cases suffered from speedy local or general recurrence. But within the last few years some rays of hope have been cast upon this dark chapter of surgery by the achievements reported in various directions of the results of more recent and improved operations. At the present moment the outlook of a woman with cancer of the breast is

by no means so desperate as, say, 20 years ago, either as regards the prospect of prolongation of life by operation or complete immunity from recurrence. This is due to many causes operating together and reacting one upon the other. Before all things it depends upon the spread of knowledge among the general population and the profession in regard to the danger of neglecting any tumour of the breast. This is as much as to say that the knowledge of the pathology of breast carcinoma is more accurate and general than in earlier days. The particular way in which this more general diffusion of knowledge has influenced our results can perhaps be most briefly expressed by putting before you some of the axioms now pretty generally received in relation to this question.

In the first place, our pathological knowledge is now much more accurate than formerly in regard to the commencement and mode of dissemination of cancer of the breast. The following are the pathological axioms which most directly influence our surgical practice in dealing with the disease. 1. Carcinoma of the breast is probably for a short time a purely local disease. 2. It very soon begins to spread from the primary focus into the surrounding tissues by way of the lymphatics. 3. Three systems of lymphatics participate in this process—the epi-mammary under the skin, the mammary in the breast substance, and the sub-mammary in the fascia covering the pectoral muscles. 4. The lymphatic glands of the axilla receive most of the lymph and cancer germs from these systems and act as a dam to their further progress for a time. In some rarer cases the flow of lymph takes place—in part, at all events, towards the lymph-channels underlying the pleura. 5. It is probably possible to reinfect otherwise healthy tissues during an excision of the breast by the juices of the infected material in process of removal. This may take place either by the knife or other instruments, the surgeon's hands, or by actual contact of a cut surface of the infected area with the dissected surface. 6. When the cancerous infection has reached the underlying muscles it usually corresponds with a spread to the internal organs.

Bearing these points in mind the following surgical axioms have come to be pretty generally held and acted on in the operative treatment of the disease with great advantage to the patient. 1. An excision of the breast to be effectual must be early. 2. The overlying skin, subcutaneous fat, pectoral fascia, axillary fat and glands with the entire breast must be widely and deliberately removed. 3. During this dissection all division of carcinomatous tissue should be avoided and if inevitable freshly sterilised instruments, &c., must be used. 4. As little direct handling of the parts to be removed as possible should take place. 5. Arrest of all immediate bleeding should be accomplished preferably by forcipressure, and if not by ligature and subsequent oosing by elastic pressure and bandaging. Rest for the wound and the patient should be secured for at least two weeks. 6. All this extensive removal can be accomplished with but little risk to the patient in fairly early cases. 7. When the disease has infected the muscles palliation alone can be expected from surgical interference, and it is questionable whether very extensive operations involving risk from shock ought to be performed with only this end in view. Indeed, the apparently paradoxical rule (which for my own part I have followed of late) appears to be justified—viz., that the more localised the primary focus of carcinoma in the breast is the more wide reaching should be the excision on the above lines. That is to say, there is in such cases a fair prospect of complete eradication of the disease by a wide-reaching operation, and therefore it is justifiable to run some risk of shock. The converse rule appears also to have much to recommend it—viz., that the more wide reaching the disease the more clearly should the operator keep mere palliation in view and by limiting his operation avoid the risk of extreme shock.

These considerations at all events have materially influenced my own practice of late years and I should now like to place before you the results of 100 consecutive excisions of the breast which I have done. They have been carefully analysed by a brilliant former student, Mr. J. E. Simpson, in his Liston Prize Essay for 1898, and I have only for your benefit to-day brought the record down to date which he had hoped to do had he lived. He spared no pains to make the analysis accurate by looking up the patients and examining the documents in the Registrar-General's office at Somerset House, and his industry and ability are known to us all. The first point he examined into was the nature of the disease for which excision was performed. The following were his results :—

Nature of tumour.	Number of cases.	Nature of tumour.	Number of cases.
Scirrhus	82	Cystic adenoma	1
Colloid cancer	2	Duct papilloma	1
Scirrho-encephaloid ...	2	Chronic fibrosis	1
Duct cancer	4	Doubtful	1
Cystic degeneration ...	4		
Fibro-adenoma	2	Total	100

This gives us a proportion of 90 malignant cases to nine of non-malignant and one doubtful.

The next point studied was the gross mortality in 100 excisions. This comes out as follows, and you will notice that the deaths fall mostly to the earlier years when procedures were far less perfect than of late.

No. of cases.	Cause of death.	Date of death.
1	Pyæmia.	1878—3 months after operation.
1	Septicæmia.	1880—1 month ,, ,,
1	Cellulitis.	1888—8 days ,, ,,
1	Syncope.	1894—9 ,, ,, ,,
1	Pleurisy.	1895—4 ,, ,, ,,

The first three of this group of deaths from operation would probably not appear in any subsequent series of cases so much has been the improvement in wound treatment since 1888. The mortality, therefore, to-day is probably far below this 5 per cent. But such cases as that of syncope occurring in an old lady on the eighth day when the wound was perfectly healed per primam belong to the accidents of our experience against which we cannot be shielded by any amount of care. In the case of pleurisy there was no injury of the pleura so that the cause was probably the exposure in a feeble woman. Leaving out the cases of so-called duct cancer as perhaps not strictly carcinoma there remain 86 cases of undoubtedly malignant character, including scirrhus (82), colloid (2), and scirrho-encephaloid (2). These I have grouped in the following tables in a way which gives us some idea as to the "expectancy of life in cancer of the breast."

TABLE I.—*Cases known to have Died long after Excision, presumably from Recurrence, though one case certainly died from Calculous Pyelitis without Recurrence, and possibly others.*

Lived over 7 years ...	1	Lived over 2 years	14
,, ,, 6 ,, ...	3	,, ,, 1 ,, ...	14
,, ,, 5 ,, ...	1	,, under 1 ,, ...	10
,, ,, 4 ,, ...	2		—
,, ,, 3 ,, ...	7	Total	52

= 26·9 per cent. over 3 years.

It is evident from this that 26·9 per cent. have lived over three years and yet succumbed to cancer. Mr. Simpson traced a further nine cases for over three years, but found no record of death in any.

Here we see that 52 cases have died within intervals ranging from two months to over seven years. In Table II. you have 20 cases known to be alive at the intervals given; and of these 15 are or were alive over three years.

TABLE II.—*Cases of Excision of the Breast known to be Alive at the Intervals given in July, 1900, grouped with those Alive and without Recurrence respectively 10 years and one month, one year and seven months, and one year and two months when last heard of more than a year ago.*

Living after 14 years	1	Living after 2 years	3
,, ,, 10 ,, ...	1	,, ,, 1 ,, ...	2
,, ,, 8 ,, ...	2		—
,, ,, 7 ,, ...	1	Total	20
,, ,, ,, ...	3		
,, ,, ,, ...	1		
,, ,, 4 ,, ...	3		
,, ,, ,, ...	3		

= 15

TABLE III.—*Cases known to have Died taken together with those still Alive and Examined as to Duration of Life.*

Lived over 13 years	...	1		Lived over 1 year	... ...	16
,, ,, 10 ,,	...	1				62
,, ,, 8 ,,	...	2				
,, ,, 7 ,,	...	2	= 16·2 per cent.	,, ,, 1 month...	... ...	10
,, ,, 6 ,,	...	6				72
,, ,, 5 ,,	...	2		Untraced...		9
,, ,, 4 ,,	...	5	=29= 33·7 per cent.			81
,, ,, 3 ,,	...	10		Died from operation		5
,, ,, 2 ,,	...	1				86

From this it will be seen that 16 per cent. lived over five years and 33·7 per cent. over three years. These figures appear to justify the hope that the expectancy of life is improving as time goes on. It is clear that over 33 per cent. live more than three years after the operation, which has suggested to some surgeons that such cases should be regarded as permanent cures. But some of the cases (26·9 per cent.) have died most likely from recurrence in all but one after an interval of immunity of over three years, so that such a presumption is unwarranted.

Another interesting point comes out from this analysis—namely, that only seven suffered from *local* recurrence. Those in whom the disease has returned have shown it in internal parts. This is another good feature of the modern operations, local recurrence being most depressing and painful, while internal generalisation is often not so.

These cases have been accurately recorded and in almost every case the diagnosis with the naked eye has been confirmed by microscopical examination by various competent observers, mostly the hospital registrars. In the oldest case in the list the glands were extensively invaded as well as the breast, and a bad prognosis was given at the end of the operation, and yet at the end of 14 years the patient is well and free from any trace of cancer. This and some of the other cases seem to justify the hope that this disease can be eradicated by the knife. And it is not too much to hope that with still further improvement in early diagnosis and treatment a far larger proportion of cases may be saved. If the four cases of duct cancer were included the figures would be still more favourable.

ON THE PATHOLOGY AND THERAPY OF ANGINA PECTORIS.

BY PROFESSOR THEODOR SCHOTT, M.D.

AMONG chronic diseases of the heart angina pectoris has in the passing century attracted the interest of the medical profession in a remarkable manner. Ever since the first excellent description by Heberden appeared more than 100 years ago the various theories advanced as to the nature and the causes of stenocardiac accesses have been in sharp opposition. This may be explained in great part by the fact that, as Latham justly remarks, angina pectoris must be regarded not as a disease *sui generis* but as a series of symptoms. Even, however, in regard to angina pectoris vera—to which the following observations are exclusively directed—opinions still remain unsettled and divided. The hypothesis of Heberden and of Latham that the anginal fit is to be regarded as a real tetanic contraction of the cardiac muscle has found at different times a varying number of adherents. A tetanic cramp of the whole cardiac wall would, if it prevailed but a short time, certainly destroy human life; but a tetanic contraction of a part of the heart might take place without deadly result, as has been demonstrated latterly by experiments of Basch and Grossmann. In direct opposition, however, is the theory of Parry which has been effectively supported by the celebrated Stokes. According to this opinion angina pectoris must be attributed, not to an increase but to a further reduction of the muscular energy of a heart already enfeebled. According to Parry the stenocardia is a sort of syncope with a preceding strong oppression or pain in or near the heart, the consequence of an organic lesion the effects of which are brought into evidence by a lowering of heart power. Thus Parry opines that the symptoms are caused by an accumulation of blood in the cardiac cavities. This explanation has been powerfully supported in Germany by the well-known Professor Traube, an authority on the subject of heart diseases. Traube also believes that there is loss of power of the heart muscle, but he thinks that the access results from a rapidly increasing tension of the walls of the ventricles under the influence of an accelerated over-filling of the cardiac cavities, in consequence of which the motor as well as the sensor nerves of the heart respectively are subjected to a degree of pressure or tension sufficient to account for the sudden pain. Samuelson, whose experiments are founded upon an artificial constriction of the coronary vessels, differs from Traube only in that he supposes the over-filling of the heart to take place, not in the left ventricle but in the right auricle. French physicians, such as Potain, Germain Sée, and others, attribute the attack to an ischæmic state of the cardiac muscle, attributing the pains to causes similar to those observed when there is a blocking of the arteries as in endarteritis obliterans and in similar processes. But the ischaemic state of the cardiac muscle may be taken to induce a weakness of the organ, so that this theory agrees in the main with that of Parry and Stokes. Although the latter view commands a majority of adherents—as may be gathered, for example, from the opinion expressed at the meetings of the London medical societies—it has always found opponents as at the Congress of Internal Medicine at Wiesbaden (1891) where Vierordt, one of those who opened the discussion, revived the question whether the stenocardiac fit is really dependent on debility of the heart. The principal argument for that doubt is that the pulse does not of necessity show any corresponding change—that there may be no diminution of volume—that in some cases, indeed, it becomes stronger. Another argument is that manifest signs of weakness of the heart are not invariably discoverable.

Before we discuss these theories let us consider what processes are found to be associated with angina pectoris vera. They are, in the first place, sclerosis of the coronary vessels, alterations of the aortic valves, and aortitis, especially that form which causes an ectasia of the ascending portion. (In a case of angina pectoris combined with insufficiency of the mitral valve which has been under my treatment these three years I observed latterly the development of an aortic stenosis; so that also in this case, though there are no signs of rigidity of the vessels, the sclerotic process at the heart cannot be regarded as doubtful. I may add that latterly I have seen several similar cases.) It is known, however, that the sclerotic change in just this part of the aorta is not without an influence on that spot from which the coronary vessels take their origin, and not seldom it may be noted post mortem that, though the other parts of the coronary arteries still show a sufficient lumen it is reduced at the point referred to in such a degree that a bristle can scarcely be introduced. The next consequence of such an arterial change must be that as a result of decreased circulation the muscles of the heart are no longer adequately nourished. Weakening of the heart and defect of energy follow of necessity. Moreover in the stenocardia of angina pectoris vasomotoria—the pseudo angina resulting from so many different causes may be left aside—the heart is called on to exert itself against a contracted arterial system, so that in such cases, also, there is a sufficient cause for a sudden relative weakness of the heart. The conditions calculated to induce a weakening of the heart are apparently present in both instances, and it is easy to understand that every demand for additional effort is likely to be followed by an additional, as well as sudden, failure of energy. The suddenness of the paroxysm may be also directly attributable to the retardation of the circulation within the coronary vessels. A moderate distension of the cardiac muscle may easily lead to a temporary occlusion of one or more coronary vessels at the seat of an already existing constriction. In other cases a thrombus or an embolus are the cause of the block, and we know that such vascular conditions give rise to violent as well as sudden pain in other parts of the muscular system. The experiments of Samuelson, of Cohnheim, of Schultess-Reihberg, and of many others have furnished sufficient evidence of this.

Let us now inquire whether clinical observation lends confirmation to what has been suggested. I restrict myself to my own experience, and I would in the first place

emphasise the fact that I never could observe any absolutely characteristic or invariable condition of the circulatory system before, during, or after the accesses. Let us look first to the state of the pulse. For that purpose we must not entirely depend on digital examination—we must have recourse to the sphygmograph and the sphygmomanometer. How often do we recognise by means of these instruments that, for instance, a bradycardia, which actually exists in some instances, is in a number of others only apparent, and that the sphygmograph discloses a number of pulsations which are not appreciable by the finger so that the apparent bradycardia may be an actual tachycardia. In other cases we meet with a real tachycardia or an intermittent or arhythmic pulse. That the volume of the pulse very often appears reduced is well known. With a large number of patients I have noted reduction of the pressure of the pulse during the attacks. The latter observation is especially applicable to the pulsus celer, the tension of which is frequently apt to lead to mistakes.

We will now proceed to the examination of the heart itself. In the earliest stages of this cardiac disease it is frequently very difficult to certify to difference in the strength and character of the heart's sounds in the intervals between the attacks as compared with those of unimpaired health. There are other cases in which the contrast becomes rapidly apparent. It will not, however, escape the attention of a practitioner who has occasion to observe such patients for a long period that heart-sounds become feebler during the fits; in other cases the sounds become dull or impure and distinct murmurs are observable, and not rarely I have convinced myself that the rhythm assumes the character of a gallop. Less frequently the beatings of the heart become foetal or fluttering.

Evidence still more demonstrable may be obtained by percussion.[1] The limits of dulness have been accurately traced with a solution of nitrate of silver. The following may be observed more or less definitely according to the progress of the disease. In the beginning there is a moderate dilatation which affects especially the left side. For a time the left auricle may be more distended than the corresponding ventricle. If the malady advances the heart becomes more and more distended; the right side becomes involved, but the left ventricle remains more permanently dilated until finally the whole heart is and remains enlarged. In such cases—that is, those in which the limits of the heart fail to recede to a normal state—we note that with the stenocardia there co-exist the other indications of a cardiac dilatation with consequent incompetence, such as breathlessness, &c., but the characteristic feature which is attested by percussion at the beginning of the disease is debility of the left heart. It has been a satisfaction to me to be able to confirm these results of percussion by means of the x-rays, which supply an important additional resource for physical examination. I had an opportunity last year when I made a number of experiments with Roentgen rays in cases of cardiac muscular diseases, not only to examine with the fluorescent screen but to take a radiogram of a man 40 years of age at the very moment in which he became subject to an anginal fit. This patient had in former years consumed quantities of beer and of effervescent waters. Seven years ago he was visited by his first attack of gout. Since that time he has had frequent attacks of podagra and gonagra. The last one took place a fortnight before the examination in question. At the left elbow, for some weeks, a tophus had been apparent. The first attacks of oppression were felt while bicycling; later, palpitations and breathlessness were induced by over-exertion. Within the last few months the oppression in the chest increased and was accompanied by radiating pains in the left arm and fingers. The stenocardiac fits were most observable in cold weather, especially during the prevalence of cold winds and fogs, so much so that he was brought to a standstill in the streets. Latterly his medical adviser was able distinctly to note a cardiac dilatation. The urine had a specific gravity of 1015 and showed a trace of albumin but no casts.

In a former paper[2] I drew attention to the fact that with the help of leaden discs fixed to both the nipples, we are able to ascertain whether the patient has maintained under examination the same distance from the photographic plate (as well as from the fluorescent screen) to the Roentgen tube. It must be especially noted that the anginal attacks are readily excited by bodily exertion and by mental excitement. A somewhat accelerated pace, the ascent of even a slight incline, even the act of turning round in bed or breathing in cold wind or fog may suffice to cause a stenocardiac fit, acts which, however insignificant they may be, require a somewhat increased effort on the part of the heart. Under favourable conditions and especially in a state of absolute rest these accesses generally soon subside. The etiology of the affection is too well known to need special description, but it must not be forgotten that inheritance plays a prominent part in the causation of this disease. I myself have observed a good number of cases in which several individual members of one family have suffered from angina pectoris.

It now remains to consider the therapy of this disease, and in doing so we shall, I think, discover from further evidence the correctness of the Parry-Stokes theory. Setting aside prophylaxis the treatment may be considered under two heads—viz.: (1) the therapy of the anginal fit itself; and (2) the treatment of the heart in the intervals between attacks. The actual paroxysms are most efficaciously relieved by the nitrites, and on that subject the publications of Sir William Broadbent, Sir T. Lauder Brunton, &c., are so well known that I scarcely need to enter into further details. Nitro-glycerine is in most cases superior to the nitrite of amyl, as its effect is mostly more prompt and intense. I decidedly prefer the liquid form to the tabloids on account of the more rapid effect and the facility of accurate dosage, but we know that inhalations of the nitrite of amyl prove successful in some cases in which nitro glycerine fails to relieve. My experience of the use and value of the tetranitrate of erythrol is not sufficiently extensive to justify the expression of a decided opinion. Nitro-glycerine in suitable cases frequently produces striking effects, but without doubt its application requires much caution and experience and constant medical supervision, as, in default of these safeguards, collapse is only too likely to occur. Antipyrin, formerly much used by the French and especially by Germain Sée, has more and more lost its advocates, not only because of its more or less questionable efficiency, but also on account of its being a source of some danger to the patient. The paroxysm of pain may also be relieved by the application of external measures such as friction with spirit of wine (I prefer hot spirit of wine with an addition of salt), mustard spirit, or the application of mustard leaves, &c. But most efficacious have I found the application of heat, and for that purpose I have designed a special india-rubber bag provided with a thermometer in such a manner that the temperature of the water may be measured and regulated at any moment. Moving the bag at a temperature of from 140° to 170° F. with light touches over the whole chest effects, in a good number of cases, either marked relief or the absolute suppression of the pains.

In a number of cases, however, we must expect to be disappointed by the above-mentioned remedies and be prepared for the pains to become so intense that we shall be forced to have recourse to narcotics. Before all others stands morphine, but even where it becomes indispensable it is advisable not to bring it into continuous use. It is preferable to give single considerable doses and, if necessary, to administer it subcutaneously. The injurious effect on the heart of the prolonged use of morphine may be regarded as generally admitted. In iodine we have a medicament which is to be used as well during the fits as during their intervals. As all salts of potassium are more or less detrimental to the heart, and as in cases of angina pectoris vera we have to apprehend a failure of power, I always prescribe the iodide of sodium, which in view of the irritating effects of salts of iodine on the mucous membranes, including that of the digestive organs, is best exhibited in milk. In a series of cases it has proved very useful even where no antecedent syphilitic taint existed; in others it was not followed by good effect, but this remedy also ought not to be given for a long-continued period and particularly not if given in increasing doses. Especially will it be necessary carefully to watch the weight of the body, as all the salts of iodine are apt to destroy the molecules of albumin and thereby to cause more injury than any benefit that can accrue.

In the intervals of the attacks and indeed often in the course of the attacks we must take measures to stimulate the heart and to strengthen it. As stimulants we especially

[1] I avail myself of the method of my late brother, August Schott—that is, a percussion with limitation, by which we are enabled to percuss the anatomical limits of the heart. This is a fact which amongst others I have often demonstrated before several medical officers of the Maison de Santé at Berlin.

[2] Deutsche Medicinische Wochenschrift, 1897.

commend ether or camphor and the salts of caffeine. Among the latter I desire to express a caution as to the use of iodio-salicylate, because I have observed that marked relapse is apt to follow the use of that remedy, whereas the sodio-benzoate and the citrate appear to be exempt from that drawback. It is a well-known fact that digitalis fails to relieve much more frequently in cases of angina pectoris vera than in many other diseases of the heart. This applies as much to the uncomplicated forms caused by the sclerosis of the coronary vessels as to those which are combined with aortic valvular lesions or aortitis. We must not, however, undervalue its usefulness to such an extent as has been done latterly in different directions, for, though the pains be little or not at all influenced by its use, we often succeed in obtaining a beneficial effect from this important drug in cases of heart disease. Still less must we rely upon strophanthus which too often is ineffectual; and still less can we trust to inferior remedies such as convallaria majalis, adonis, and such like remedies which need scarcely be mentioned.

In such cases as we are now considering physical therapy proves its value in a most satisfactory way, and the tonic effect of the balneological and gymnastic treatment as described by my late brother and myself becomes most evident. I abstain from recurring to the details of our system and only lay stress upon the importance of much caution in the application of the baths as well as the therapeutic exercises. I would especially express a warning against hurrying on to strong effervescent baths and especially to the strongest form of the effervescent running baths. Besides, more harm than benefit would be derived from baths either too cool or too warm. Very rarely are we allowed to go below 85° or to rise above 93° F., nay, even from a temperature of 95° I have now and then observed unfavourable effects. Moreover a long immersion is not advisable. I mostly limit it to the space of 15 minutes and rarely extend it to 20 minutes. Similar precautionary measures are to be observed with regard to exercises. The resistance must not be very strong, the pauses between the exercises must not be too short, and the patient must never be suffered to exert himself till fatigued. A sufficient interval of rest after the exercises is under all circumstances important.

In a series of articles I have shown in past years the results of the balneological and gymnastic treatment especially in cases in which rest as well as pharmaceutic remedies proved useless. Recently their efficacy has been attested by many authorities. In response to inquiries lately addressed to me I should be glad to state that the treatment by baths and exercises has proved to be of signal success even in cases in which the nitrites, and principally nitro-glycerine, had more or less failed. I would especially refer to a treatise by Rives.[3] Rives had the opportunity of observing at Nauheim a patient who was under my treatment and had been sent to me by Sir T. Lauder Brunton. He came from Karachi, was aged 53 years, and was subject to so many stenocardiac fits that in the first few days of his stay at Nauheim he was obliged to have recourse to as many as 20 tabloids of nitro-glycerine a day. A treatment of 13 weeks caused all symptoms not only to disappear but resulted in a general state of well-being. It deserves to be remarked that this patient continued to enjoy good health until great mental strain induced by the ravages of the plague in his town subjected him again to slight attacks. A renewed treatment in Nauheim of seven weeks in the spring and of five weeks in autumn again had the effect of removing his troubles so that Sir T. Lauder Brunton, on the return of the patient, was able to certify a perfectly normal condition of the heart. I must not omit to mention that with such patients it is necessary to adhere to the same precautionary measures as to diet, exercise in fresh air, dress, &c., as are to be observed with other patients with heart diseases, such as failure of compensation in consequence of valvular lesions, and in myocarditis, &c.

It must, however, be clearly stated that not all cases without exception are suitable for balneological and gymnastic treatment. When arterio-sclerosis has made such progress that the danger of embolism or apoplexy may be apprehended, or where there is reason to believe that there already exists even a small aneurysm of the wall of the heart or the aorta which might favour rupture, it is well known that every increase of the blood-pressure, which is a natural consequence of the above treatment, might lead to the fatal consequences. Rigidity of the vessels or early stages of arterio-sclerosis may be treated by these methods and usually yield satisfactory results, but I must lay stress again upon the fact that advanced sclerosis is a contra-indication for this treatment. As regards the latter state I have raised a note of warning years ago,[4] and my later experience has only strengthened my view on the subject. In such cases strict enforcement of rest is certainly preferable.

Looking, in conclusion, once more at the actual state of our therapeutic experience we are brought to the conclusion that the results which we obtain by the application of the above-mentioned more prominent medicaments is to be explained by the lowering of the pressure of the blood and the moderation of the heart's action consequent upon it. Differing therefrom are the causes which ensure success in the balneological and gymnastic treatment because it is obtained by the exercise of a tonic influence. By strengthening the heart's muscle, as well as by acting on the cardiac nerves, the distressing symptoms of the angina pectoris are either removed or reduced; in other words, *ex juvantibus*, it is shown that the Parry-Stokes theory is based on a real and solid foundation.

Bad-Nauheim.

[3] New York Medical Journal, 1896.

SOME REMARKS UPON THE TREATMENT OF HEART DISEASE, WITH SPECIAL REFERENCE TO THE "HILL HEART."[1]

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IN the treatment of most forms of heart disease the difficult problem of how to relieve an organ which has such constant demands made upon it, and which is obliged to rest and recuperate in the brief intervals allowed between its active contractions, is met in one of two ways, the one being the stimulation of the heart, so that by working harder and more efficiently, it may compensate for its own defectiveness, and the other the lessening of the work that the organ has to perform, so that the balance of demand and supply of force may be restored and maintained. In most cases of valvular disease with failing compensation, we of course adopt the two methods of excitation and compensation both at once, combining the exhibition of cardiac stimulants, such as digitalis, strophanthus, convalaria, sparteine, or caffeine, with the diminishing of cardiac work by ordering rest in bed, and the lowering of blood-pressure by the judicious use of purgatives, diuretics, &c.

In the special methods adopted at Nauheim, the same combination of stimulation with alternate lessening of work, explains the marked success of this form of treatment in suitable cases. The effect of the Sprüdel water at a temperature of 95° and charged with carbonic acid, is to cause the peripheral vessels to contract and the blood-pressure consequently to rise, as evidenced by the slowing of the pulse. The result is that the heart has more work to do and therefore has its muscle stimulated to more forcible and complete contraction, with the consequent more thorough emptying of its cavities. After leaving the bath the peripheral vessels dilate, the blood-pressure is lowered, and the resulting diminution of the work the heart has to perform, enables the muscle to maintain its increased state of efficiency. Exactly the same sequence of events occurs with the resisted movements, for here again the first effect is to cause a rise of blood-pressure, shown by the slowing of the pulse, while the second effect of dilatation of the vessels of the muscle lowers blood-pressure and therefore lessens the strain upon the labouring heart. In this respect it is interesting to note that Dr. Schott has demonstrated by the use of the Roentgen rays that the more complete emptying of the heart and the consequent reduction of dilatation under this treatment, is an actual fact and is

[4] THE LANCET, May 23rd, p. 1143, and May 30th, 1891, p. 1199.

[1] A paper read before the Yorkshire Branch of the British Medical Association on March 28th, 1900, at Huddersfield.

not to be explained by better filling of the lungs and consequent diminution of the area of cardiac dulness. The good results of Oertel's method of graduated walking exercises by slow movements, first on the flat and then up inclined planes, are capable of a similar explanation.

All these methods, however, to be successful must have a heart to work upon which has muscle substance capable of either exerting more force under increased stimulation, of increasing its power of contraction as the result of its hypertrophy if the conditions are favourable, or at least of recovering itself if nutrition is abundant, and partial rest gives it time for recuperation. The cases which, from the point of view of treatment, present the most difficulty are those in which, from whatever cause, the muscle substance is degenerated to such an extent that it is unable to react to the means employed for its relief. In such cases, whether the condition is the last stage of disease of the aortic valves, of failure of the right ventricle in old emphysema and bronchitis, or of the left ventricle in granular kidney, all that can be done is to acknowledge that the heart is no longer able to maintain an efficient circulation of the blood in the adverse circumstances in which it is placed, and to endeavour permanently to lessen the work it has to do—that is to say, to alter as far as possible the relationship between the general system and the heart in such a way that the patient may, for a longer or shorter period, enjoy an impaired but still tolerable degree of comfort and health.

There is another class of case, however, and one which is especially common in hilly districts, where there is also no valvular disease, but where the heart muscle is degenerated to an extent which, though not sufficient to incapacitate the patient from following his ordinary avocations or, as a rule, to produce any backward pressure effects, yet, when any sudden strain is thrown upon it, or any interference with its free movements is encountered by it, is apt to give rise to alarming and dangerous attacks. These may only cause distress, dyspnœa, or anginal pain, or they may induce syncope, or even lead to seizures of an epileptiform or apoplectiform character, and may, and not infrequently do, terminate in almost sudden death. The following brief extracts from my notes will serve to point out the main features met with in these cases.

CASE 1.—The patient was a bachelor, aged about 70 years, who had always enjoyed good health, but for the last few years had been unable to walk upstairs so well as formerly and had often had to stop and rest on going up hill. His appetite was good and sleep was not disturbed. During the week before his medical attendant asked me to see him he had had repeated attacks of acute cardiac distress with faintness and a feeling of impending dissolution. He had only been under treatment since these attacks commenced. There was no valvular lesion; the heart beat was fairly forcible and the pulse was regular and not of high tension. All the other organs were healthy. There was no albumin in the urine. During the previous week the patient had suffered from a great deal of flatulence. For two days after seeing the patient there was no attack, then one came on which proved immediately fatal.

CASE 2.—The patient was a man, aged 58 years, who was first seen in May, 1896, and who for several years had had flatulent dyspepsia. On two occasions he had had severe fainting attacks followed by a feeling of great exhaustion necessitating rest in bed and treatment for some weeks. The bowels were confined. The patient looked older than his years and had an anxious expression. He was fairly well nourished, though he stated that lately he had been eating very little in the hope of diminishing the flatulence. On going up hill he often had to stop, not from dyspnœa, but from a feeling of oppression on the chest associated with what he described as a "beating" in the stomach. The heart was considerably enlarged, the apex beat was feeble and somewhat diffused, and the pulse was of low tension and very irregular; no bruits were to be heard and all the other organs were healthy, except the stomach, which was dilated. On a light but nourishing diet and general tonic treatment the patient improved and two months later was put upon sparteine sulphate and nitro-glycerine. The next time I heard about him was nearly two years later when, after a long period of comparative comfort, during which he had not required treatment, he had become careless as to his food and mode of life with the result that all his old symptoms returned. On this occasion it was decided, since the condition was of much shorter duration than on the former one, at once to make use of cardiac tonics and he was given a pill of sparteine sulphate, digitalis, and extract of hyoscyamus once a day. Creasote in mixture was ordered to be taken immediately before meals and he was again put upon a strict diet and directed to move about slowly. 18 months later when seeing another member of the family I casually saw the patient who looked well and said that as long as he was careful he got on all right, a statement that his medical adviser confirmed, but that any small indiscretion upset him.

CASE 3.—For purposes of comparison I may briefly mention the following case. The patient was a man, aged 25 years. Until recently he had been accustomed to be in constant training and to spend most of his time in athletic sports; lately, however, he had given up athletics and had very little exercise. In the course of the previous two weeks he had had three syncopal attacks. He was a healthy-looking, well-developed, well-nourished man. All organs were normal except the heart which was enlarged, with a feeble diffused impulse, a prolonged first and a somewhat accentuated second sound. The pulse was 75 and was feeble. In this case the condition was evidently one of a "soft" heart—that is to say, of a heart in which the muscle, which during training had become hypertrophied to meet the increased strain put upon it, had when the strain was relaxed become flabby. I have not heard from this patient's medical man what the further history of the case was, but I have no doubt that the condition proved to be a purely temporary one.

CASE 4.—In the last case that I propose to mention the patient was a man, about 65 years of age, who had had a similar attack to the one for which I first saw him, some months before. He was a stout, florid man, had always been temperate, and had had remarkably good health all his life. One night he went to bed in his usual health, but early on the following morning he had an attack which was of a convulsive nature but of short duration. When his medical attendant saw him shortly after the attack he had a bounding pulse and was only semi-conscious, with suffused head and face. His medical attendant performed venesection to ten ounces, after which he improved rapidly. At 2 P.M. on the same day, when we saw him together, there were no localising symptoms, he had completely recovered consciousness, and except for headache did not feel as though there were much the matter with him. The treatment consisted in dieting and the administration of nitro-glycerine, under which he soon got about again, but almost every week he had a slight attack which his medical adviser said was not unlike minor epilepsy, but he, however, never lost consciousness. These attacks were specially apt to come on after any excitement or after a full meal. The heart was enlarged and the first sound was thick, but there was no valvular disease. The patient continued in much the same condition until December last, when he had a rather more severe attack, though still without loss of consciousness. The pulse was lower in tension but otherwise the condition was unchanged. Shortly afterwards he had a similar attack which proved fatal.

I have introduced the third case because it explains, I think, why in hilly districts one so frequently meets with the condition illustrated by the other three cases. The history of these cases, I take it, is as follows. A healthy man who is constantly having to go up and down hills, working hard, eating probably somewhat largely, the food, moreover, not always being very easy of digestion, develops cardiac hypertrophy and slight gastric dilatation. As time goes on he probably becomes wealthier and hence most likely takes less exercise, whilst at the same time his food is liable to be richer, although in quantity not materially diminished. If at the same time alcohol be at all freely indulged in, all the circumstances are present which tend to produce dilatation of the stomach and degeneration of the heart walls, the hypertrophied muscle becoming soft and fatty changes occurring in the cells. The stomach, too, which has bravely battled for years with the somewhat large supplies which it has been made to hold, now begins to lose tone and stretch. At the same time the peptic and especially the oxyntic cells become less active and fermentative changes are apt to occur in the food owing to its lying too long in the atonic organ, with the result that gases are evolved which still further tend to increase the distension. There is probably, too, less room for the stomach to expand downwards than was previously the case, and it therefore when distended pushes up against the heart, which, degenerated as it is, can but ill cope with any more difficulties than it already constantly has to

surmount. The whole result is that the heart's action becomes tumultuous, irregular, or imperfect, according to the degree of degeneration which is present in its walls, and the patient experiences a feeling of distress which may proceed no farther or which may lead to so-called lipocardiac asthma, or syncope, or to epileptiform or apoplectiform attacks, any one of which may be more or less suddenly fatal. In cases where the heart muscle, though degenerating, is still able, for at any rate a short time, to respond to the increased excitation, the beats become very forcible and laboured, whilst the intravascular tension is raised and the return of the blood to the heart is interfered with. Under such circumstances there may be increased intracranial pressure, and epileptiform or even apoplectiform attacks with more or less profound unconsciousness may occur. In the latter case the breathing may become stertorous and the whole appearance may be strongly suggestive of cerebral hæmorrhage, but if the patient survives a few hours will generally suffice to show the true character of the seizure, for as a rule the attack is of but short duration and there are either no localising symptoms or if there be any muscular weakness it very soon passes off.

As regards treatment, if the disease be in an early stage cure may probably be effected by the absorption of fat and the hypertrophy of the muscle cells, but if the condition be more advanced the treatment presents much difficulty, for whilst almost every case needs its own special line of treatment it is frequently by no means easy to determine what will be beneficial in any individual case. The first requirement always seems to me to be, that the stomach should be treated by strict dieting as well as by gastric antiseptics, such as sulpho-carbolate of soda, creasote in mixture, or salicylate of bismuth, or if necessary by lavage. Further, it should be insisted on that the meals should be taken practically dry, the necessary quantity of fluid being drunk when the stomach is empty. In addition, some saline aperient such as Hunyadi Janos or Apenta water should be taken with a glass of hot water before breakfast. Later artificial digestants, mineral acids, gentian, strychnine, capsicum, &c., are of service, but it always seems to me that the first need is to clear the stomach and to attempt by preventing distension to reduce its size. As regards the heart itself, the most important thing is to diminish its work, and this may often be accomplished by making the patient rest in bed with a restricted diet, and by the regular exhibition of trinitrin or in rare cases erythrol tetranitrate. The milder cases do not, I think, need to be kept in bed if they can be trusted to move about slowly and to obey directions as to diet. Where the attacks are epileptiform or apoplectiform in character a more marked lowering of blood-pressure by diuretics and free purgation by salines and even sometimes by venesection is advisable. Alcohol, except for sudden emergencies, is, I think, better withheld, or if it be allowed it should only be taken in small quantities with meals. As regards the direct stimulation of the heart I have had, I think, the best results with sparteine sulphate combined with citrate of caffeine. In cases where the heart is rapidly failing beneficial results may sometimes be induced by administering full doses of strophanthus every hour for from 12 to 24 hours and by the inhalation of oxygen over the same period; but unfortunately in most of these cases where once the left ventricle has dilated to any considerable extent it is a sign that the unequal contest will soon be given up for good. When the seizure is over, however, the most important part of the systematic treatment must undoubtedly be directed to the stomach if future attacks are to be prevented. In most, or at any rate in a large number of cases, when they come under observation the stomach is found to be markedly dilated, and without question the onset of an attack, whether simply of distress, of dyspnœa, or of a more serious nature, is in the large majority of cases associated with flatulent distension of that organ.

"Hill heart," as this condition may be named, differs from fatty degeneration of the heart as generally described in that there is in the "hill heart" antecedent hypertrophy and consequently a greater liability to the apoplectiform and epileptiform kind of attack, both being associated with a temporary increase in the blood-pressure. The resulting high tension is thus due to a conservative constriction of the peripheral arteries and a resulting more forcible action of the heart when its movements are interfered with by a distended stomach or other cause. This, of course, to a considerable extent modifies the treatment and necessitates a variation in the methods to be employed according to the stage to which the disease has advanced.

With regard to the reflexly excited tumultuous movements it must be remembered that Gaskell, Morison, and others have shown that, contrary to what used to be taught, the whole of the heart substance is abundantly supplied with nerves. Further, as Morison has suggested, it is not improbable that simple hypertrophy with consequent stretching of the intermuscular nerves may, when only slight extra work is thrown upon the heart, cause slight increase of the tension on the nerves sufficient in itself to cause excitation of them, and so the origination of irregular contractions of the muscle, and thus the production of anginal pain.

I have only attempted to deal in some detail with fatty degeneration of the heart, with special reference to degeneration following hypertrophy but without valvular lesion. With such difficult subjects as the treatment of mitral stenosis, of uncomplicated aortic disease, of the sleeplessness of both aortic and mitral disease, and of the vomiting of mitral and tricuspid disease, I have made no attempt to contend, for each one would need a separate paper of its own if justice were to be done to it. Nor have I discussed the value of opium, of iodide, of arsenic, and of mercury in certain heart states, the heart conditions associated with septic disease, the toxic effects of alcohol and tobacco, syphilis, or the fatty degenerations resulting from too large or too long-continued doses of such drugs as phosphorus and arsenic. Finally, if I have perhaps insisted too much upon the danger of overloading the stomach when the heart is diseased I have only copied Shakespeare, who truly realised the importance of the matter when he made Macbeth say to the doctor who was treating Lady Macbeth:—

> "Cure her of that:
> Canst thou not minister to a mind diseased,
> Pluck from the memory a rooted sorrow,
> Raze out the written troubles of the brain,
> And with some sweet oblivious antidote
> Cleanse the stuff'd bosom of that perilous stuff
> Which weighs upon the heart?"

Bradford.

TRACHEOTOMY WITH ANTITOXIN IN LARYNGEAL DIPHTHERIA.

BY W. BLAIR BELL, M.B. LOND., M.R.C.S. ENG.

IN spite of all the personal evidence and in spite of statistics there is still a lurking suspicion in the minds of some medical men and an absolute assuredness on the part of the laity who are of the anti-vivisection persuasion that the antitoxin serum has not fulfilled expectations. Those medical men who are still in doubt must have used it injudiciously—that is, too late or in too small doses, or only in the severest cases, or possibly not at all. Those of the laity who are waging a wordy war against its efficacy cannot have had the opportunity of being grateful to it for its curative action on themselves or those near and dear to them. I have used it continuously in all cases for the last four years and in my limited experience in my own practice I can say that I have not lost a single case directly from the disease. One patient died suddenly from heart failure associated with pneumonia nine weeks after tracheotomy had been performed, but beyond the cardiac weakness following the diphtheria one could hardly attribute the result to that disease. I had also to be personally thankful to it during a recent attack of diphtheria. It is not my intention to dilate on the use of the antitoxin beyond stating that the ordinary dose of 1500 units is quite inadequate for severe cases; and I now never give less than 3000 units for an initial dose, and do not hesitate at 8000 units for any patient over 12 years of age.

The following are notes of three consecutive cases of severe laryngeal diphtheria in which I performed tracheotomy last year. They were the only cases which required the operation, for others which I had during that period yielded to the antitoxin alone. I am convinced that the success attending the operations was due to the antitoxin given. A few years ago they would all probably have proved fatal. It would seem that the antitoxin loosens the existing membrane and prevents fresh membrane from forming, and

so in the severe cases tracheotomy will tide over the urgent dyspnœa while this is taking place.

CASE 1.—A fine fat infant, a boy, aged 16 months, was seen first on the afternoon of Feb. 20th, 1899. It was stated by his mother that he had had a sore-throat since the 14th and that he had begun to have a croupy cough on the 16th. The child was very blue, his pulse was 116 and feeble, and his respirations were 40 and very difficult. There were noisy râles all over the chest. The temperature was 97·4°F. The soft palate and tonsils were slightly congested, but there was no definite membrane to be seen (a swab taken at the time giving a negative result as regards the bacillus diphtheriæ). The glands in the neck were not much enlarged. A diagnosis of laryngeal diphtheria was made and, as the dyspnœa was obviously getting worse and the sucking-in of the supra-clavicular fossæ, intercostal spaces, and epigastrium was great, immediate tracheotomy was decided upon before the child should get worse, which seemed well-nigh impossible. 3000 units of antitoxin were injected and the operation was carried out, the child being anæsthetised with a small quantity of chloroform. Much membrane was obtained from the trachea and it seemed to have spread down to the bifurcation; this membrane subsequently gave a positive result when examined bacteriologically. A small silver tube was inserted. At the completion of the operation artificial respiration had to be performed for some time and three minims of ether were injected with one-sixtieth of a grain of strychnine before the child could be resuscitated. The patient's temperature rose during the night to 101°. At 10 P.M. 2000 more units of antitoxin were injected. Next day the child was very ill and restless with plentiful signs of broncho-pneumonia, and his temperature kept high. At 6.30 P.M. he had 1000 more units of antitoxin, and again the next day at 4 P.M. 1500 units more. The pneumonia gradually subsided and the child continued to improve steadily. On the 24th the silver tube was replaced by a soft rubber one, with which he was more comfortable. By March 2nd nothing but a little mucus was coughed through the tube. He had had a slight anti-toxin rash and albuminuria, both of which had gone by this date. The child was so nervous that it was impossible to remove the tube permanently until the fifty-seventh day. Two days later he had an attack of lobar pneumonia in the upper lobe of the right lung with a rapid rise of temperature and he died suddenly the next day from cardiac failure. At the necropsy the larynx and trachea were found to be quite clear and the tracheotomy wound in the trachea was sealed up. The whole of the upper lobe of the right lung was engorged, and the heart was pale, flabby, and dilated.

CASE 2.—A well-nourished boy, aged four and a half years, was first seen at 2.15 P.M. on August 28th, 1899. He was lying very still. His respiration was 32 and difficult, he had a croupy cough, and in his chest were a few scattered râles; his temperature was 99° F. His mother said that he had had a sore-throat since the 25th and "croup" since the following day. 5000 units of antitoxin were injected as soon as possible. A swab was taken from his throat, which was very foul with much membrane, and this gave a positive result. In spite of the injection he got worse, so at 6.45 P.M. another injection of 3000 units was given. He still continued to go from bad to worse, his breathing getting very difficult and his colour blue, and there was great sucking-in above and below the thorax and in the intercostal spaces. At 10.45 P.M., therefore, tracheotomy was performed and a silver tube was inserted. Very little membrane was obtained from the larynx or the trachea. He passed a good night and his pulse-rate decreased, but his respirations stood at 36. He had slight albuminuria. I ordered one-sixtieth of a grain of strychnine to be injected daily. On the next day he seemed comfortable, but there was very little discharge through the tube, so he was given another 1500 units. Later he seemed very collapsed and he vomited a great deal, but got rid of much membrane through the tube and mouth. From this time he rapidly improved. The silver tube was replaced by a rubber one on Sept. 4th. On the 6th there was no albuminuria and the tube was permanently removed on the 11th. On the 25th the child was quite well and the wound was sound. He still remains in excellent health.

CASE 3.—On Nov. 17th, 1899, at 10 P.M., I was called in, in consultation with Mr. H. W. Lloyd, to see a boy, aged four years who, the mother said, had had a sore-throat for eight days and a croupy cough for six days. Mr. Lloyd had seen the patient for the first time two days previously and the swab he had then taken from the throat gave a positive result as regarded diphtheria, and consequently on the morning of the 17th he had injected 500 units of antitoxin. When I saw him the child had great difficulty in respiration, but as his general condition, colour, pulse, &c., were good, and as there was no marked sucking-in of the chest spaces I did not consider that tracheotomy was immediately called for, especially as he had had practically no antitoxin—for I do not consider 500 units of any use. Mr. Lloyd, therefore, at my suggestion, gave him 4000 units that night. I saw the child again on the next morning at 11.15 with Mr. Lloyd, when we found him much worse, his colour being dusky and the sucking-in of the thoracic spaces very marked. His pulse was 120, his respiration was 36, and there were râles all over his chest; he was very excited and restless. In the firm belief that one should always have a "bit in hand" as regards the condition of the patient in these cases and not leave tracheotomy to be used as a last resort, and as the child was getting worse and more rapidly so in the last hour or two, we decided that this operation should be done at once. Mr. Lloyd administered chloroform and I performed the operation with no difficulty beyond some extensive venous hæmorrhage from the very much engorged veins. At 12.15 P.M. the patient had another injection of 4000 units and again at 7.30 P.M. he had a further injection of 2000 units. I saw him on the two following days when he was rapidly recovering. He had an injection of one-sixtieth of a grain of strychnine daily. This I always think excellent as a cardiac stimulant. I did not see the child again as I contracted diphtheria myself from the case which developed four days after the operation, but Mr. Lloyd tells me that he removed the tube on the eleventh day and that the child made an uneventful recovery and is now well.

Since the danger of contracting diphtheria is mainly from the way in which the membrane is shot through the tube on to the operator when the tube is put in for the first time or when it is being cleaned daily, I have had made for me a small screen consisting of a circular glass plate (of the best thin plate-glass) which is one foot in diameter; this is fitted on to a Y-shaped handle of ebony and fixed by two pins which perforate the prongs of the Y, in which are slits for the glass plate, and holes bored in the glass. This allows the screen to be taken to pieces and cleaned. It is light and can easily be held by a nurse or assistant between the face of the person who is inserting the tube and the child's neck. It is only required at the moment of insertion.

Wallasey.

A NOTE ON THE PATHOLOGY AND TREATMENT OF GASTRIC ULCER.

BY WILLIAM STUART-LOW, F.R.C.S. ENG.

THERE are few affections around which medical and surgical controversy has more strenuously striven than that of the pathology and treatment of gastric ulcer and with less profit either to the suffering patient or the puzzled and perplexed practitioner. Here pathology has failed to point the way to a proper treatment and therefore the therapeutics of gastric ulcer is still so much groping in the dark. A series of theories have been propounded, but each in its turn has failed to explain the malady or to serve as a foundation of a successful therapy. The clean, red, and sometimes angry or dry tongue, the clear, hyper-acid, non-mucous, and scanty vomit, and the constant constipation with the frequently dry scybalous stools certainly point to deficient secretion of the normal juices of the alimentary canal, but more especially to a deficiency of the mucous secretion—the natural protector and lubricator of the entire passage. Noting these and other features in the semeiology and the fact that many of my cases of gastric ulcer have been in patients suffering from the accompanying diseases of atrophic pharyngitis and rhinitis and amenorrhœa—conditions in which the pathology is admittedly clear and the dominating feature is that of a deficiency of mucous secretion—I have for some time been treating my cases of irritable stomach, painful digestion, and gastric ulcer with mucin with most satisfactory and gratifying results. I have had prepared for me through the offices of Messrs. Burroughs and Wellcome the mucin in powder form; they manufacture it from animal bile which contains it in large amount. It is

dark brown powder and almost tasteless and odourless and is therefore quite unobjectionable to swallow. This I give just before meals or rather as *hors d'œuvre* at the beginning of the meal in cachet form with an equal quantity (10 grains) of bicarbonate of soda. The good effects of this are markedly evident in the immediate alleviation of all painful sensations in the gastric region and in the establishment of regularity in the action of the bowels. That the constipation is relieved is a most important fact, and the value of mucin as an aperient is a great point in its favour as a therapeutic agent and of much interest physiologically. The diet of the patient is also carefully regulated and certain substances having a specially soothing and protecting action, such as animal jellies, calf's foot, mutton, and chicken jelly and thin cornflour, and the frequent use of a jujube of freshly prepared marsh-mallow, are allowed. I direct the feeding to take place every two or three hours, according to the severity of the symptoms. The *rationale* of this method of treatment is to protect the irritable gastric surface, and especially the ulcerated part, from attrition by the food and constant worry by the hyper-acid gastric juice—therefore the mucin is given first to form a gluey coating over the lining membrane, a kind of Unna's dressing is applied, and the surface is thus soothed and protected. If there is still any pain or uneasiness after nourishment then another cachet is given and thus the increased acidity is counteracted. The ulcerated surface on the stomach wall is treated just as an ulcerated surface on the body would be—it is protected from friction and by rest given a chance to heal.

Mucin is a compound substance, being composed of a proteid and a carbohydrate called "animal gum"; it is the principal constituent of mucus and is very widely distributed in the body, occurring in epithelial cells, goblet cells, and mucous glands. There are probably several mucins and they are all viscid and tenacious and precipitated by acetic acid and are dissolved by dilute alkalies. The contents of one cachet—10 grains each of mucin and bicarbonate of soda mixed in a glass with a little water and gradually heated to the temperature of the body—readily change into a sticky glue and this is the viscid solution that effectually protects the ulcer and the sensitive and inflamed gastric wall and regulates the bowels. The functions of mucin in the animal economy may be various, but one most certainly is that of the protection of the delicate membrane it pours over, not only from influences from without, but from the effects of other secretions as seen in the urinary and alimentary mucous tracts. We know that any injury to the healthy gastric mucous lining heals with marvellous ease and quickness because the wounded part is protected by the mucous present in the healthy state from the irritating influence of the gastric juice. And we also know that the gastric ulcers that bleed, as evidenced by melæna and hæmatemesis, are those that do not perforate but generally get well, as the effused blood no doubt takes the place of the deficient mucus and thus shields the ulcerated part and allows it time to heal over effectually.

Welbeck-street, W.

A CASE OF DIFFUSE SUPPURATIVE PERITONITIS FROM GANGRENE OF THE APPENDIX; LAPAROTOMY; RECOVERY;

WITH NOTES ON THE FREQUENCY AND MORTALITY OF PERITONITIS.

BY HENRY A. DUFFETT, F.R.C.S. ENG.

THAT disease of the vermiform appendix might be the cause of suppurative peritonitis was first recognised in 1827 by Louyer and Villermay,[1] but it was not till 1885 that Kronlein[2] performed the first successful median laparotomy for what was probably appendicular peritonitis. For though the perforation in the appendix was not itself found, fœtid and fæcal pus was found coming "mostly from the right side." This was followed in 1888 by two successful cases by Sands[3] and McMurty[4] by lateral laparotomy. Since then with modern methods of treatment, and recognition of the fact that laparotomy holds out the only hope for an otherwise hopeless condition, a considerable number of recoveries after operation have been recorded, though the mortality is still a terribly high one. In the causation of suppurative peritonitis the appendix holds a prominent place. Out of 47 cases due to all causes reported by Treves[5] 22 were appendicular in origin. The frequency of peritonitis occurring from disease of the appendix is estimated by Halliday[6] and Ryerson Fowler[7] at 14 per cent., and by Talamon[8] and Armstrong[9] at 8 per cent. It may occur either in the primary attack or in relapsing cases, and Fitz,[10] who has collected 256 cases of appendicular peritonitis, states that 11 per cent. of these occurred in course of recurrent attacks. Kraft[11] puts the frequency still higher at 25 per cent.

In a considerable number of cases (probably 25 per cent.) appendicitis is complicated by the formation of an abscess, and its rupture, flooding as it does the general peritoneal cavity with intensely infective material, is the most dangerous and fatal complication that can occur. In 30 cases of abscess reported by With[12] six burst into the general peritoneal cavity. Bull[13] has collected 67 cases in eight of which peritonitis was caused by rupture. The estimation of the mortality of "general suppurative peritonitis" is of considerable difficulty in consequence of the vagueness of the term "general" used in this connexion. Many of the cases reported are not so in reality, as Deanesley[14] has pointed out, but are merely large intra-peritoneal abscesses, and he thinks that the term cannot be fairly used unless (1) the pus extends as high as the umbilicus; unless (2) it occupies both flanks; and unless (3) it is limited by no firm adhesions. Barling[15] goes still further in thinking that the term should be restricted to those cases in which the subphrenic spaces are involved, as the pus is often limited by the transverse colon. If, however, we take it in its widest sense and include those cases of even limited intra-peritoneal suppuration apart from localised abscess, the mortality is still very high. Armstrong, Demoulin,[16] and MacDougal[17] estimate it at 60 per cent., Chauncy Puzey[18] and Hawkins[19] at from 75 to 80 per cent., whilst Barling[20] in his latest series of cases had the far better results of 35 cases and 21 recoveries, an average mortality of but 40 per cent. From the journals of the last five years I have collected 103 cases of general suppurative peritonitis in England treated by laparotomy with a mortality of 48 per cent. There can be no doubt that the early recognition of the presence of peritonitis is of the greatest importance. Every day's delay decreases the slender chances of recovery. Fitz out of 176 fatal cases found that death occurred in 56 per cent. in the first week and in 34 per cent. in the second, though probably the larger number of these and all that survived longer were but cases of intra-peritoneal suppuration well shut off. Of those that died in the first week 34 per cent. died within the first five days, and to save some of these it would have been necessary to operate within the first two or three days; but the difficulty of positive diagnosis and the hope that the peritonitis may become limited by adhesions will far too often prove an obstacle to early operation. The following case that has recently been under my care in the Seamen's Hospital, Greenwich, during the temporary absence of Mr. W. Johnson Smith, is of interest from the widespread distribution of the infection and the recuperative power that is so prominent in children. The history of the case is as follows.

A lad, aged 14 years, a boy at the Royal Naval School, Greenwich, was admitted to the Seamen's Hospital

[1] Archives Générales de Médecine, 1827.
[2] Archiv für Klinische Chirurgie, 1888.
[3] New York Medical Journal, February, 1888.
[4] Journal of the American Medical Association, July, 1888.
[5] System of Surgery, vol. ii., p. 612.
[6] Brit. Med. Jour. May 7th, 1898.
[7] Annals of Surgery, 1894.
[8] Appendicitis.
[9] Brit. Med. Jour., Oct. 9th, 1897.
[10] Talamon's Appendicitis.
[11] Ibid.
[12] Perit. Append. eller den ved Ulcera. og. Perf. af. Append Fremkaldte, Kjöbenhaven, 1879.
[13] Treves's Perityphlitis, 1898 ed.
[14] Brit. Med. Jour., Feb. 12th, 1898.
[15] Edinburgh Medical Journal, December, 1899.
[16] Archives Générales de Médecine, 1894.
[17] Edinburgh Royal Infirmary Reports.
[18] Herrold, Deutsche Medicinische Wochenschrift, 1894.
[19] Diseases of the Vermiform Appendix.
[20] Loc. cit.

on Oct. 2nd, 1899, for acute pain and distension of the abdomen. Up to this time he had been a robust and healthy boy and his previous history disclosed no features of interest. He had had no attacks of pain at all resembling appendicitis and no attacks of colic or diarrhœa. For two or three days previously to the acute onset of the disease he had been feeling out of sorts but with no definite pain. On Sept. 29th he was lying on one of the seats in the playground and some of his companions in play sat upon his abdomen. He was at once attacked with acute pain in the abdomen, chiefly, according to his description, about the umbilicus, and was taken to the sick ward in connexion with the school. On the following day, the 30th, he vomited frequently and could retain neither milk nor other food. The bowels were confined. The pain continued severe but with exacerbations. On Oct. 1st the vomiting still continued, the bowels were confined, and he was given castor oil which was at once rejected. Subsequently an enema was given, but with a negative result. During the day it was first noticed that the lower part of the abdomen was rigid and did not move on respiration. I saw him first on Oct. 2nd with Mr. G. W. Armstrong and with his consent he was removed with all care to the Seamen's Hospital. On admission at 1 P.M. he was somewhat collapsed but soon rallied. His face was pale and drawn and the conjunctiva were slightly icteric. The temperature was 104° F., the pulse was 130, weak and compressible, and the respirations were 30. He complained of great abdominal pain, but largely localised to the left iliac fossa. There was extreme tenderness all over the abdomen, which was rigid in its lower part. The tenderness was specially marked on the left side. Both legs were drawn up and any attempt to straighten them much increased the pain. There was no abdominal distension and no swelling or tumefaction. The lower half of the abdomen did not move on respiration. He was ordered frequent hot fomentations and peptonised milk in small quantities. The milk, however, was at once returned and the vomiting then continued at frequent intervals. The vomit was bilious in character and by no means feculent in odour. An enema was given but without result, but on repetition brought away some scybala and then nutrient enemata were given every four hours. During the night he slept at intervals, but was often awakened by the pain. He vomited at 2 A.M. and again at 6 A.M. when the vomit had a distinctly feculent odour. On the morning of the 3rd he was obviously much worse. The temperature was 101° and the pulse was 120, weak and running. The abdomen was distended and hard and rigid. Palpation showed extreme abdominal tenderness specially acute in the left iliac fossa, the patient flinching at the slightest touch. The right iliac fossa was not more tender than the rest of the abdomen. There was absolutely no abdominal movement on respiration. As there was no doubt that general peritonitis was present, though the exact cause was doubtful, I decided to open the abdomen. From 8 A.M. the vomiting had been most persistent, and about 10 A.M. became stercoraceous. He was also troubled with frequent hiccough.

All precautions against shock having been taken and Dr. R. W. Mayston having given chloroform I opened the abdomen in the middle line by a four-inch incision below the umbilicus. On incising the peritoneum about half a pint of most foul and fœtid pus at once escaped. I increased the incision slightly upwards, and on introducing my hand found no adhesions in any direction. The intestines were lying free and bathed in pus which extended over the whole abdominal cavity, above the transverse colon as high as the liver and behind the stomach. There was a large collection of pus in the pelvis. In the right iliac fossa there was, however, some matting of the parts, and from this mass pus could be seen coming from an aperture through which I could pass my finger. It seemed now certain that it was the appendix that was at fault. I thoroughly flushed out the abdominal cavity with large quantities of boiled water, clearing it as much as possible from the pools of pus that were lying amongst the intestines and passing the nozzle of the irrigator well up to the liver and behind the stomach where the pus had collected somewhat abundantly, and washing out from above downwards so that the fluid should run as much as possible into the pelvis. As I found that it would be very difficult to reach the appendix through the median incision I placed a large flat sponge over it and made a second incision parallel to and above the outer half of Poupart's ligament on the right side, and on opening the peritoneum a further quantity of foul pus escaped. The appendix was now easily seen lying free in an abscess cavity, and on introducing my finger the opening leading into the peritoneal cavity was at once apparent. The appendix itself was gangrenous with a ragged opening at its extremity. No concretion was seen, but it might have escaped with the pus. After ligaturing its mesentery I tied off the appendix as close as possible to the cæcum by a single ligature. The abscess cavity was then flushed out and the abdomen was again thoroughly cleaned with boiled water which flowed freely out from the iliac incision. The excess of fluid was mopped up and a glass Keith's drainage-tube passed at the lower angle of the median wound into the pelvis. The remainder of the incision was closed in layers with gut sutures. The iliac incision was drained by a strip of gauze and the remainder of the incision was closed. Both wounds were dressed with cyanide gauze.

The patient stood the operation well. The fluid that had collected was drawn off every hour and in this way about an ounce was removed, and on the following morning, as no more had collected, the tube was removed. On Oct. 3rd he was given small quantities of peptonised milk. There had been no return of the vomiting. Both wounds were dressed and lightly packed with gauze. There was some discharge from the iliac wound which was feculent in odour. From this time to the 11th the patient made most satisfactory progress. He had no pain in the abdomen which was supple and moved freely. The bowels were well moved on the 4th, 7th, and 9th, and the temperature never reached above 99° or the pulse above 80. He was given milk, beef-tea, and cocoa, and on the 7th a small piece of thin bread-and-butter. On the 11th, however, his temperature rose to 101° and on the 12th and 13th to 102°. The abdomen became much distended and the abdominal wound which had entirely healed gaped. The iliac incision which had healed all but a small sinus also gaped, and the discharge which had hitherto been slight and odourless became exceedingly foul. The patient complained of acute pain in the abdomen and vomited immediately on taking nourishment. The pulse became rapid (110) and he passed a motion in the bed. The abdomen was acutely tender to the touch, and again this was specially marked in the left iliac fossa. On the 14th he was again obviously very ill, the temperature reaching 102° and the vomiting continuing. As a copious enema did not relieve him I thought that there was probably some recrudescence of the peritonitis, so he was again anæsthetised and the original median incision was re-opened. Though numerous small adhesions were present there was no sign of pus or lymph, but some matting was now found in the left iliac fossa, which had all through the case been the site of the most acute tenderness. I thought, perhaps, that there might be some localised collection of pus in this situation, and fearing to reinfect the abdominal cavity I made a fresh incision on the left side identical in position with the one on the right. Adhesions were plentiful here also, but no pus was discovered. The median and left incisions were completely closed. The sinus in the right iliac fossa was explored and carefully enlarged and a small quantity of pus was found here. This was packed with gauze. This second operation also was well borne. The following day the temperature dropped to 99° and remained between this and 100° till the 20th when it reached the normal. The wound in the left iliac region healed by primary union, but the median incision again broke down, healing rapidly, however, by granulation. The sinus in the right iliac fossa closed gradually. The patient rapidly improved in strength, was out of bed on a couch on the 31st, and was sent to a convalescent home on Nov. 29th with all three wounds soundly healed.

What the exact origin of the peritonitis was in this case is doubtful, I think, but I believe that it was due to the sudden flooding of the peritoneal cavity with foul pus from the rupture of an appendicular abscess. If this is the correct explanation it is extraordinary that the abscess produced no symptoms previously to its rupture. Another solution of the case might be that the appendix had been inflamed for some time, for as Matterstock[21] states, the prodromal symptoms in children may last for a long time with but such slight inconvenience that a boy would take no notice of them. A somewhat similar case has been reported by Cushing[22] in

[21] Gerhard's Handbuch der Kinderkrankheiten, 1880.
[22] Boston Medical and Surgical Journal, No. 24, 1886.

which the appendix was ruptured in an apparently healthy boy by slight injury, fatal peritonitis resulting. If this was so in my case the abscess could be explained by the fact that the appendix was the origin of the mischief and that the more intense inflammation was going on in its vicinity.

The complete absence of special tenderness over the region of the appendix was most marked in my case, the pain being transferred to the opposite side. Fitz mentions this as occurring in but 1 per cent. of his collected cases. The mass in the right iliac fossa I did not discover before the operation on account of the extreme pain that any palpation produced, or by palpation under the anæsthetic as the abdomen was distended. I very much regret that I did not examine the patient per rectum which I am satisfied should be an invariable rule, but my only excuse is that he was so ill that I did not wish to put him to further pain. I cannot but mention the devoted care and attention that Mr. H. H. Cotman, the house surgeon, and the sister in charge of the case bestowed on the boy, and it was very largely due to their skill that a successful termination can be recorded.

Sidcup.

THE REMOVAL OF SEPTIC EFFUSIONS FROM THE CAVITIES OF THE HUMAN BODY.

BY EDWARD ARMITAGE, M.R.C.S. ENG., L.R.C.P. LOND., D.P.H. CANTAB.

THE writing of the following article was suggested to me by the perusal of an abstract of a clinical lecture on the Joint Affections of Gonorrhœa delivered at the Leeds General Infirmary on July 17th, 1899, by Mr. B. G. A. Moynihan and published in THE LANCET of Nov. 18th (p. 1349). It was with great interest that I read the above article, but I must confess to a feeling of disappointment on finding that, as the lecturer observes, "so far as treatment is concerned there is little that is new to be said." I had hoped to see a description of the technique of incision of the joint, particularly since the successful results published by Dr. J. O'Conor, of the British Hospital, Buenos Ayres, in THE LANCET of July 8th, 1899 (p. 93). To us general practitioners who practise our profession in the outer corners of the earth,—

> "Islands of the Southern Run
> And cities of Cathaia,"

the subject of gonorrhœa and its complications is one of overwhelming interest, for it is one of the diseases which is most persistently forced upon our attention and possibly that disorder which we find most difficult to treat satisfactorily, and this for two main reasons: firstly, the indifference and almost criminal carelessness with which the disease is regarded by those who acquire it; and secondly, the difficulty or impossibility of persuading one's patients to observe that amount of rest and freedom from disturbing influences which is so necessary a factor in the treatment of the disease in its early stages as well as for the prevention of the fearful complications which so often prolong its course. Almost does one feel constrained to agree with that eminent surgeon who was inclined to consider gonorrhœa as a more appalling disorder than syphilis, and certainly I have often recalled to mind during the course of my practice the despairing serio-comic exclamation of the great Frenchman, Ricord: "Si je dois aller en enfer, je sais le supplice qui m'attend; c'est de me voir entouré de blennorrhéens m'obsédant de leurs lamentations, de leurs instances, de leur geste significatif pour obtenir guérison."

Any contribution, however modest, which may suggest an alleviation of gonorrhœal or other septic affections of the body-cavities may therefore be considered worthy of a hearing, which is my apology for the introduction of the following cases from my note-books. With respect to the treatment of gonorrhœa and its complications I have no doubt that my medical brethren will agree with me when I say that amidst the shower of new remedies with which we are overwhelmed in these latter days of the nineteenth century—remedies principally distinguished by their termination in one of the suffixes, "ine," "in," or "ol," as also by their costliness—we are occasionally obliged to bark back to first principles and to cure our patient with some time-honoured remedy; it is, in fact, with such a one (one of our most highly valued drugs—namely, mercury) that I am particularly concerned in this article. Now whilst I fully believe that the ideal treatment of these cases of gonorrhœal arthritis is incision of the joint under strictly aseptic precautions, removal if necessary of altered synovial membrane, irrigation with sterilised solutions, and closing of the joint under aseptic dressings without drainage—still I know that in the majority of cases this is a course of treatment which for various reasons we are unable to carry out and therefore we are compelled to treat our patients by medical measures.

CASE 1.—The patient, a young white man, came to see me from the island of Hawaii on Dec. 21st, 1897. He had been suffering from gonorrhœa followed by cystitis to which had succeeded infective arthritis of the metacarpo-phalangeal joint of one of his fingers. He had been treated, according to his own statement, by hypodermic injections of morphia, *usque ad nauseam*, and having been under my care during the early part of the year for another complaint had taken ship to come to consult me. The treatment which I employed was as follows: for the cystitis a mixture containing sulphate of magnesia and soda with tincture of belladonna, also hot sitz baths; and for the gonorrhœa emulsion of salol, five grains of the drug three times a day. The affected joint was painted with a liniment of green extract of belladonna and glycerine and covered with medicated wool. On Jan. 2nd an application of unguentum hydrargyri compositum was made to the affected joint which was compressed by strapping, and this application, together with warm bathing of the joints and massage, was continued until recovery ensued. During the same month he left the island of Maui permanently cured.

In connexion with the above case I should like to observe *en passant* that to judge from my personal observation there are still a considerable number of practitioners who have failed to appreciate the value of that golden maxim, which I believe we owe to the Birmingham School, "Opium masks symptoms." Since in 1891 it was particularly brought to my attention by an eminent teacher of that school in connexion with a case of "volvulus" it has always been impressed on my memory, and frequently, particularly in cases in which the peritoneum has been involved, have I had to recognise its extreme value.

CASE 2.—The patient, a young white man, came under my care from Honolulu on July 14th, 1898; he had been undergoing treatment for a considerable time. Here the infective arthritis involved the right knee-joint, which was much swollen and very painful. The treatment, as in the previous case, was by emulsion of salol (from five to seven and a half grains) internally every four hours. The patient was confined to his bed and the pain was relieved by sedative applications. Later in the course of his illness the joint was treated with applications of unguentum hydrargyri compositum and a tonic mixture of iron, arsenic, quinine, and citrate of potash was prescribed in addition to the salol. On August 27th he returned to Honolulu, the result being a permanent cure after a somewhat prolonged convalescence.

CASE 3.—This patient, also a white man, came under my treatment on Sept. 7th, 1899. He had according to his own statement been treated by hypodermic injections of morphine to relieve his pain which during the acute stages of the disease had been intense. The arthritis in this case affected the left wrist-joint and at the time when the patient first consulted me had assumed the chronic form; but, to judge from his statement, the disease whilst in the acute stage must have been of a very severe nature. The whole of the great synovial sac of the wrist-joint was filled with exudation, the contour of the joint was obscured, the surrounding tendon sheaths were enlarged, the hand was flail-like and painful on movement, the fingers could not be flexed on the palm, nor could movements of pronation or supination be performed without the aid of the other hand. No case could appear more suitable for incision and irrigation; in fact, I proposed the operation to the patient, but he preferred to wait and observe the effects of medicinal treatment, and being of a particularly active and robust physique he continued his work, which entailed a great deal of exercise on horse-back during the time he was under my care, with the exception of one or two days, when on my advice he had some defective teeth filled by a dentist in order to avoid buccal trouble during the mercurial treatment. Medicinally he was treated at various times with salicylate of sodium, salol, urotropine, and iodide of potassium. But the most marked effect was obtained by

the application of unguentum hydrargyri compositum spread on lint, enveloping the enlarged synovial bursa and tendon-sheaths, and surrounded by a strong compress of adhesive plaster. Occasionally the application was intermitted for a few days whilst the affected part was massaged, after which the tendon-sheaths were painted with tincture of iodine and the hand enveloped in cotton wool. By Dec. 20th the patient's hand, formerly in such a desperate condition, was almost entirely cured, the swelling of the tendon-sheaths in the neighbourhood of the joint was very slight, movements were freely performed, and although, owing to the length of time during which the hand had been confined, the muscles were somewhat atrophied it was a useful member.

I gave the above title to this paper in order that I might introduce a case of effusion into the cranial cavity of bacterial origin which was treated on somewhat similar lines as the cases already mentioned. On Oct. 24th, 1898, I was summoned to a sugar plantation, Spreckelsville, on the island of Maui, to see a sick child. The patient, a half-caste girl, aged about three years, proved to be suffering from bronchitis. The usual remedies were prescribed. Two or three days later further examination revealed consolidation of the apex of the left lung and the case assumed a more serious aspect. On Oct. 29th signs of basic meningitis appeared. Fortunately, owing to the kindness of neighbours, I was able at this time to have the child removed to more comfortable quarters, whilst satisfactory arrangements for nursing were made. The child presented the symptoms of acute meningitis: high fever, retraction of the head, hydrocephalic cry, and slight squinting; the tache cérébrale was not marked, however. During three days the patient was unconscious of her surroundings. The treatment adopted was the administration of an effervescing mixture, containing sulphate of quinine, bicarbonate of potash, and citric acid every two hours, according to the recommendation of Dr. I. Burney Yeo.[1] Cold applications were applied to the head, and, in addition, I ordered that one teaspoonful of mercurial ointment should be rubbed into the shaven scalp for a quarter of an hour each day. On Nov. 4th the child was convalescent and made an uninterrupted recovery.

In his "Practice of Medicine" (third edition, July, 1898, p. 956) Professor William Osler says: "There are no remedies which in any way control the course of acute meningitis"; he makes no reference to mercurial inunction. As to other applications, whether hot or cold, it seems to me unreasonable to suppose that they can exercise any influence whatever on a septic process which is taking place at so great a distance from the surface. But in the case of mercury we have a drug which admittedly penetrates the tissues underlying the skin, whilst in many morbid conditions its detergent power has long been a matter of common observation. That the cerebral disorder in the case just narrated was due to direct infection ascending by way of the blood- or lymph-paths from the diseased left apex appears to me to be an undeniable fact only requiring bacteriological evidence, unfortunately unattainable, for its final proof. Such being granted, surely it must be acknowledged that we have in mercury locally applied a most powerful agent against morbid processes of bacterial origin, and such being the case is it not surprising that it should not be more frequently employed?

I may add, in conclusion, that in the case of a Japanese suffering from "idiopathic" (?) meningitis and treated in a like manner in 1895 I had a similar happy result.

Wailuku, Island of Maui, Hawaiian Islands.

NOTE ON A CASE OF ACUTE GLAUCOMA THE RESULT OF AN OPERATION FOR SECONDARY CATARACT.

BY CHARLES BELL TAYLOR, M.D., F.R.C.S.EDIN.,
SURGEON TO THE NOTTINGHAM AND MIDLAND EYE INFIRMARY.

THE patient came under my care in his eighty-sixth year, suffering from asthma, chronic bronchitis, and constant cough. He had been blind for some years from senile cataract in the right eye and latterly the left eye had become similarly affected. Operation had not been recommended by an ophthalmic surgeon who had been previously consulted on account of the patient's numerous infirmities, and there seemed to be little chance of ameliorating his condition. Nevertheless, as the patient was very anxious to see and as he could not well be worse off than he was, I determined to extract the cataract on the right eye.

The operation was performed under cocaine without misadventure and without iridectomy, and although the eyeball collapsed completely on extraction of the lens—assuming the form of a tiny bird's nest—the patient made a good recovery and there was no subsequent prolapse of the iris. 12 days later, as the pupil of the operated eye was central and freely dilatable, I ventured to divide a piece of the capsule with the needle-knife and he returned to his home in a northern county with every prospect of good vision. I was disappointed, however, when on a visit in his neighbourhood four months later to find that he could see very little and that the slit in the capsule had closed. I was consequently compelled to remove the peccant membrane *en masse*, which I did with iris forceps through a small incision in the corneo-sclerotic junction. All went well for three days, but on the night of the fourth I was sent for as he was suffering from intense pain which had not been mitigated by the instillation of atropine. The eyeball was as hard as stone and I therefore incised the sclerotic and punctured the hyaloid fossa, letting out a few drops of vitreous. Agony was at once changed to perfect ease. There was no further trouble, and although he has suffered severely from repeated bronchitic attacks he now has a good-looking eye with a central pupil and excellent sight.

It has seemed to me desirable to record this case not only on account of the success of simple extraction under most trying conditions, not only on account of the failure of discission of the capsule and the advent of acute glaucoma when that membrane was removed in its entirety, but also because of the instant arrest of the glaucomatous process by an operation which did not involve excision of the iris.

The occurrence of glaucoma, both in its simple and acute forms, though rare after operation for secondary cataract, is a contingency that has to be reckoned with and it is noteworthy that although its progress may be at once arrested by excision of the iris or puncture of the hyaloid fossa it is not inhibited or prevented by iridectomy, either as a preliminary or when performed as a part of the operation of extraction for cataract. One would think that if it were possible to cut open the eyeball and to remove so important a portion of its contents as the lens itself without misadventure or serious consequences that any subsequent dealing with a mere shred of capsule would be almost, if not quite, danger free. It is not so, however. Many surgeons consider that a second operation is as serious or even more serious than an extraction. Professor Nuel of Liège says that "a simple discission of capsule is quite as dangerous as an extraction for cataract"; Professor Gayet of Lyons says, "There is no operation I dread more"; Professor Kalt of Paris says, "Secondary cataracts always give me great anxiety"; and Dr. Valude (editor of the *Annales d'Oculistique*) says, "C'est la vraiment le gros avator de l'operation de la cataract, la vrai complication plus redoutable que les prolapsus iriens qui guerissent bien et que la panopthalmie si rare." Trosseau, Eperon, Bribosa, and Critchett warn us against the disastrous consequences that occasionally follow operations for secondary cataract and, although my experience of some thousands of cases of extraction of cataract has on the whole been favourable, I have still seen quite enough to warrant me in insisting that we cannot be too careful when dealing with secondary membranous formations.

The late Alexander Pagenstecher and, more recently, Delgardo of Madrid, have sought to solve the problem by scooping out the lens capsule and all at the time of extraction, but this operation does not always attain the end in view and involves loss of vitreous, deep anæsthesia, and conspicuous deformation of the pupil. The late Professor Hansen used habitually to puncture the hyaloid fossa at the time of extraction in order to secure a clear pupil, a practice which I see has been recently revived by Mr. Work Dodd. Other surgeons, by cross-hatching the capsule (Swanzy), or by removing as large a portion as possible with forceps at the time of extraction, have sought to avoid the necessity for subsequent interference. These operations, however, are neither quite

[1] Manual of Medical Treatment and Clinical Therapeutics, vol. i., p. 563, fifth edition.

so safe nor so feasible as they seem to be and are apt to be followed by wrinkling of the capsule cell proliferation or more or less obscuration of the pupil. Besides, the breaking up of the capsule sets free particles of lenticular cortex which are not easily seen at the time of extraction and which although comparatively harmless when retained within the capsule become a formidable source of irritation if set free in the anterior chamber or when brought into contact with recently cut surfaces. It is best, therefore, I think, as a rule, to follow Professor Knapp's advice and to incise the capsule in its periphery only on a level with the upper border of the lens, to get rid of as much cortex as possible, and to take the chance of a second operation should that become necessary. If it does become necessary then we must above all be careful to avoid any manipulation that will involve drag on the ciliary processes. The late Sir W. Bowman endeavoured to avoid this risk by breaking up the capsule with two needles, one in either hand. With these he penetrated the cornea at an angle of 60° or thereabouts, pierced the capsule, and then, by revolving the points of the needles round each other and separating the handles, tore the opaque film asunder without any drag on the tissues with which the capsule is connected. The needles, however, are apt to dig into the vitreous humour, manipulation of the doubly impaled eyeball is difficult, and the operation is not always successful; hence Professor Noyes of New York has suggested that we should transfix the eyeball with a Graefe's knife, and then with two blunt hooks passed through each of the external wounds and pulling one hook against the other, establish a sufficient aperture without drag on the ciliary region. The hooks, however, can only be withdrawn with their concavities upwards, and the double manipulation of the eyeball on the stretch and with a contracted pupil complicates matters sometimes to an embarrassing degree. I have, therefore, substituted sharp hooks so curved that they may be entered and withdrawn in any position. These operations, however, do not always attain the end in view, and we are at present practically limited to a choice of three methods when operating for secondary cataract: (1) simple discission through the cornea as practised by Professor Knapp and myself within a fortnight of extraction; (2) simple discission behind the iris and through the sclera, three millimetres from the limbus, as advocated by Gama Pinto and at present practised by Harry D. Noyes of New York; and (3) avulsion of the membrane, as adopted in the case which I have here recorded—an operation which is habitually practised by Professor Panas of Paris and which may be rendered comparatively safe by first separating the circumferential attachments of the capsule.

Nottingham.

A CASE OF MALIGNANT DISEASE OF THE OVARIES.

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AND

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THE case here recorded is one of malignant disease of the ovaries which presents clinical and pathological features of considerable interest.

The patient, a single woman, was admitted into the London County Asylum, Hanwell, on Nov. 7th, 1897. At the time of her admission she was 56 years of age and was suffering from terminal dementia. She had been insane for over 17 years, was of German nationality, and was absolutely incoherent, and quite incapable of describing or complaining of any unusual sensation or symptom. Her bodily health was indifferent, but until October, 1898, this called for no particular note. Early in this month, however, she became obviously worse and was put to bed. On Nov. 3rd she was allowed to get up, but walked about with her body bent slightly forwards and with her hands placed over her abdomen as if in pain. She was therefore put back to bed and on examining her abdomen nothing abnormal was detected. The abdominal parietes were somewhat retracted but not more so than would have been expected from her partially emaciated condition. No vaginal examination was made at this time. She remained in bed and no further detailed examination was made until Nov. 17th, on which day she vomited. It was then found that there was a swelling occupying the lower part of the abdomen. It appeared to be rising out of the pelvis rather to the right of the middle line and extended to about halfway between the pubes and umbilicus. It was rounded in shape, fairly regular in outline, dull upon percussion, and firm but somewhat elastic to the touch. A catheter was passed upon which about an ounce of normal urine was withdrawn. Per vaginam it was found that the uterus was pushed over towards the left and against the posterior pelvic wall, the cervix being depressed and easily accessible. Her temperature on the evening of this day reached 99·6° F. and on the 18th at 8 P.M. it reached 100·6°, the highest recorded point. During the next few days her temperature generally rose to 100° at night, falling in the morning to 99°. On Nov. 27th she commenced to suffer from diarrhœa of a mild type. By this time the tumour had increased enormously in size, being, as far as one could judge, at least three times as large as when first observed on the 17th (10 days previously). Its character also had altered. It was no longer regular in outline but had become distinctly nodular and the percussion note over it was now not uniformly dull. Its highest limit had reached to above the level of the umbilicus, and about three inches to the right of the middle line the tumour was crossed in a nearly vertical direction by a line of resonance. This line of resonance ceased in the right iliac region about two inches above Poupart's ligament. On the left the tumour had now extended well towards the flank. The left upper corner of the growth was cut off from the remaining portion by a line of resonance almost semicircular in shape. With these two exceptions the whole of the tumour was dull on percussion and no evidence of the presence of any fluid could be made out. There was no ascites. The superficial abdominal veins were more evident than usual.

On Dec. 6th the patient was put under chloroform and an exploratory incision was made by Dr. M. Handfield-Jones. There were extensive adhesions and the tumour was found to be almost solid throughout. Death took place on the morning of Dec. 9th.

At the necropsy, which was held within 24 hours after death, a large tumour was revealed arising from the pelvis. The kidneys were quite free. Some coils of intestine were free in the upper part of the abdominal cavity, but the remainder were adherent to the tumour which to all appearances had infiltrated the mesentery. The tumour was in the middle line and was firmly adherent around the brim of the pelvis. It was slightly adherent to the posterior parietes, but had formed somewhat firmer adhesions with the lower part of the anterior abdominal wall. On removal it was found to be a growth from the region of the right broad ligament. The ovary on that side could not be found, but the Fallopian tube was intact. The tumour therefore in all probability grew from the right ovary. In doing so it pushed the uterus backwards and tilted it to the left side. It appeared to have infiltrated the sacral glands, making a firm union with the rectum and also the lumbar glands and the mesentery above. On its anterior surface were two coils of intestine which corresponded with the resonant areas found clinically. On the left it was adherent to the left ovary, which was also the seat of malignant disease and had become enlarged to the size of a small fist.

On section the central part of the tumour was white and had the appearance of loosely packed fibrous tissue. The peripheral parts had a red, fleshy appearance. These growths, together with the uterus, which was small and atrophic, weighed 3·63 kilogrammes (a little over 8 lb.). The larger tumour measured, taking its greatest diameters, 24 centimetres long by 18 centimetres broad and 14·5 centimetres thick.

Microscopical examination of the various parts of the tumour revealed a great diversity in the component elements. Some parts were composed almost entirely of cells, with an intercellular substance slightly fibrillar or granular; other parts were almost entirely composed of bundles of fine fibres, with here and there a small round cell; and other parts had a striking lymphatic structure. There were extensive hæmorrhages into the substance of the tumour generally, every field containing scattered blood corpuscles and many

of them altered in shape. The blood-vessels were for the most part not clearly defined, or were defined by rows of spindle-cells. A correct description of the cell elements of ovarian tumours is of extreme value from many considerations which cannot be entered into here. The normal structure contains many cells of a very elementary type, which makes it conceivable almost for any kind of tumour to be developed, and also renders it possible for great metaplasia to occur in any one growth. Some parts one could classify as being fibro-sarcomatous, others as small round-celled sarcoma, and others as lympho-sarcoma. Oval cells did occur, but were isolated and few in number.

The following were some of the commoner cell elements: (1) extremely small, darkly-stained, round cells, about two-thirds the size of a red blood corpuscle, which may have been nuclei of broken-down cells (?); (2) cells a little larger than a red blood corpuscle, staining poorly with a small nucleus or nucleolus; (3) still larger cells staining deeply and containing many granules; (4) cells similar to No. 3 but oval; (5) cells like large leucocytes with two or three nuclei present; (6) large flat cells, oval or irregular, sometimes containing a nucleus; (7) small branching cells; and (8) red blood corpuscles, some showing a degree of poikilocytosis (?).

Remarks.—Pathologically, malignant ovarian tumours are of interest because of the obscurity which surrounds the actual tissue from which they develop, particularly when they occur after the climacteric period. In the normal ovary the cell elements are mainly of two kinds: (*a*) the germ epithelium of Waldeyer with the various cells forming a Graafian follicle; and (*b*) connective tissue elements, condensed in the cortex but everywhere of an elementary type. The rapid growth and extensive infiltration in this case point to sarcoma. The age, however, is somewhat over the time at which the commoner forms of sarcomata commonly develop. According to Cohnheim, tumours grow from unutilised embryonic tissue, and it is extremely probable that in this case the growth took its origin in the elementary form of connective tissue mentioned. A malignant growth having its origin in the epithelial coverings of the ovary was possible. The age of the patient was one at which there is a proneness to malignant disease, and the most likely part of the ovary to take on this character was this elementary form of connective tissue. The growth was rapid, a little over two months being taken to produce a tumour of great size. A noticeable clinical feature was the absence of ascites, the presence of which is so usual in ovarian growths.

PRUSSIC ACID IN SWEET CASSAVA.

BY PROFESSOR CARMODY, F.I.C., F.C.S.

FRANCIS, one of my predecessors in the Trinidad Government Laboratory, was the first[1] to point out that prussic acid was present in sweet cassava to a considerable extent. Francis's results have not received the attention which they deserved, probably because they were a direct but unconfirmed denial of statements repeatedly made by recognised authorities. There are very few recent editions of toxicological handbooks that make any reference to the results published by Francis. Even in standard reference works like that of Dr. Thorpe's "Dictionary of Applied Chemistry" it is stated that "the milky juice in the sweet variety is innocuous, whilst that in the bitter is highly poisonous."

The question is of importance from a toxicological point of view in those places in the tropics where cassava is used extensively as a food. For poisonous symptoms are not infrequently reported after a meal of sweet cassava; and as the two kinds of cassava—the sweet and the bitter—are so much alike as to be almost indistinguishable, the conclusion usually arrived at is that the bitter variety has been cooked in error.

My results fully confirm those of Francis as to the presence of hydrocyanic acid, although his average figures are somewhat higher than mine. This year has been an unusually dry one for Trinidad and a diminished supply of rain does affect the character of plant juices.

[1] Analyst, April, 1877.

The method of analysis adopted by me differs somewhat from that of Francis. He grated 500 grammes of cassava into 500 cubic centimetres of water which was left for two hours in a well-closed vessel. It was next strained through a linen cloth into a flask which was then corked and allowed to stand until the starch subsided. 200 cubic centimetres of the clear liquid were decanted and distilled and the results obtained were multiplied by four for the total in 500 grammes. This calculation was based on the assumption that the original 500 grammes contributed 300 cubic centimetres of water—an assumption which is not far from the truth if the cassava is quite fresh. Francis also remarks that a slight loss occurred during the process of grating, and in a tropical laboratory this loss might be appreciable. I endeavoured to avoid this loss on the one hand, and the possibility of error through assuming that all cassavas contained 60 per cent. of water on the other, by taking the whole root, slicing it quickly, and allowing it to stand in water all night in a well-corked flask. The liquid was decanted in the morning and the whole distilled. The extraction with water was repeated a second and a third time. The slices effectually prevented the great disadvantages arising from the starch finding its way into the distilling flask, which Francis prevented by subsidence but which necessitated his distilling an aliquot part, this aliquot part being a *definite* volume of 200 cubic centimetres taken from an *approximate* total volume of 800 cubic centimetres.

Francis does not appear to have made more than one extraction with water. I have made three in all cases and in some as many as five. I have found that with slices the second extraction yields as much, and sometimes more, than the first. I have repeated Francis's method of grating and find that a second extraction yields about half as much prussic acid as the first. It would appear from this, therefore, that Francis's results are not as high as they would have been had he made a second extraction. The figures obtained by Francis and myself are:—

	HCN per cent.	
	Francis.	Carmody.
Mean	0·0163	0·010
Highest	0·0238	0·019
Lowest	0·0113	0·005

It will be seen from this that while my "lowest" percentage is much below that of Francis my "highest" is nearly the same as his. This establishes the truth of the statement made by Francis, "that the so-called *sweet* or harmless cassava not only yielded prussic acid, but the quantity obtained from it so nearly equalled that from the *bitter* that no line of distinction could be drawn between them," so far as it relates to the amount of prussic acid in the cassava; but I have discovered an analytical difference between the two kinds by means of which they can be satisfactorily distinguished.

This discovery arose in trying to avoid the difficulties caused by the presence of starch in the distilling flask. At first I placed the slices in the distilling flask, added water in one set of experiments, and passed steam through in another and collected the distillates. This failed in each case through the gelatinising action of the boiling water or steam on the starch. This starch being chiefly confined to the inner portions, in my next experiments I soaked the inner slices in water at ordinary temperature, decanted and distilled. The quantity of starch thus admitted into the flask was so small as not to interfere with the distillation. The skin and outer cortical layer, which together constitute about one-fifth of the total weight of the sweet cassava, could be placed direct in the distilling flask, and the distillation carried on satisfactorily. It was this separation of the parts for convenience in distillation that led to the discovery that in sweet cassava the prussic acid is located chiefly in the skin and outer cortical layer.

The following are some of the results obtained from fairly representative samples of sweet cassava.

Inner part. HCN per cent.	Skin and outer cortical layer. HCN per cent.	Inner part. HCN per cent.	Skin and outer cortical layer. HCN per cent.
0·006	0·033	0·004	0·024
0·003	0·014	0·010	0·030
0·015	0·033	0·004	0·042
0·008	0·031	0·005	0·028
0·011	0·020	0·003	0·034
0·008	0·032		

With bitter cassava the following results were obtained from representative samples :—

Inner part. HCN. per cent.	Skin and outer cortical layer. HCN. per cent.	Inner part. HCN. per cent.	Skin and outer cortical layer. HCN. per cent.
0·031	0·024	0·017	0·019
0·034	0·012*	0·019	0·020
0·021	0·025	0·016	0·024
0·037	0·014*	0·017	0·020
0·030	0·025	0·013	0·016
0·014	0·013	0·032	0·035

* Exceptional.

The general conclusions to be drawn from these results are: (1) that in sweet cassava the prussic acid is not uniformly distributed throughout the tuber and that in bitter cassava it is uniformly distributed, or nearly so; and (2) that this affords an analytical means of distinguishing between *sweet* and *bitter* cassava.

An important observation in connexion with local methods of eating cassava is that the skin of the sweet kind is removed before boiling, the inner portion alone being cooked and eaten. This custom is no doubt the result of experience and accords with what science would now teach as a wise precaution. But notwithstanding this removal of the skin ill-effects are said to follow from the use of the inner portion if water is drunk some time after a meal. This may now be accounted for in this way. It is shown in my experiments that whilst a first boiling removes a certain amount of hydrocyanic acid—all, in fact, that exists ready formed in the tuber—that a second addition of water and subsequent boiling removes a further portion. It would appear from this that cassava in a person's stomach would also develop an amount of prussic acid equivalent to that obtained in a second distillation and that the drinking of water would dissolve this and cause it to act more readily on the system. The total quantity would, however, be far below the minimum fatal dose and would only be expected to produce those unpleasant results occasionally reported. The question next arises—Is this second portion of hydrocyanic acid produced by fermentative changes, as is known to happen in the case of bitter almonds; or is it part of that originally existing in the tuber and in some way protected from the solvent action of the first treatment with boiling water? It is possible that, with slices, the water would penetrate slowly to their interior, and thus produce a second yield of prussic acid; and that if the cassava had been grated, as was done by Francis, the water would, within Francis's limit, dissolve the whole of the acid. I have not found this to be the case, as the following experiment shows :—

Sweet Cassava.

Duration.	Half (408 grammes) sliced. n/10 $AgNO_3$.	Half (427 grammes) grated. n/10 $AgNO_3$.
First extract 2 hours ...	3·0 c.c.	2·2 c.c.
Second ,, 2 ,, ...	1·3 ,,	1·4 ,,
Third ,, 20 ,, ...	3·5 ,,	1·4 ,,
Fourth ,, 2 ,, ...	1·0 ,,	0·7 ,,
Fifth ,, 2 ,, ...	1·0 ,,	0·9 ,,
Sixth ,, 17 ,, ...	1·1 ,,	·5 ,,
Seventh ,, 2 ,, ...	0·4 ,,	0·7 ,,
Eighth ,, 2 ,, ...	0·5 ,,	0·9 ,,
Ninth ,, 2 ,, ...	0·2 ,,	1·3 ,,
Total	12·0 c.c.	10·0 c.c.

It would appear from this and similar experiments that the whole of the hydrocyanic acid cannot be removed from grated cassava by a two hours' extraction with water and that there is apparently a loss of acid even when the grating is done under water. And, notwithstanding that my yield from slices is the higher of the two, Francis's results from a two hours' extraction are appreciably above mine. As already stated, this may be due to the exceptionally dry season. Next year I shall continue the experiments in order to clear up this difficulty. At present I am inclined to believe that part of the acid may be formed by fermentative change. If this be so cassava starch on keeping would be likely to be more poisonous than when freshly prepared. Fermentation beyond a certain limit entirely decomposes the hydrocyanic acid. Cassava is also cooked by roasting the entire tuber. This removes all the HCN.

There appear to be no grounds for the common belief that sweet cassava contains more HCN the older it is. In all the samples examined during a period of nine months from the time cassava was first brought to market the proportion of HCN showed no increase that could be traced to age. Nor is there any ground for the belief that the locally grown sweet cassava is but a degenerate growth resulting from many years' association with the bitter variety. A selected sample imported from Jamaica and grown at the Local Government gardens contained the same amount, and the same relative proportions in skin and inner part, of HCN as the ordinary product of Trinidad.

The subject is not yet exhausted, and I hope to be in a position to publish further results next year.

Trinidad.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas morborum et dissectionum historias, tum allorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

YORK COUNTY HOSPITAL.

FOUR SURGICAL CASES.

(Under the care of Mr. W. H. JALLAND.)

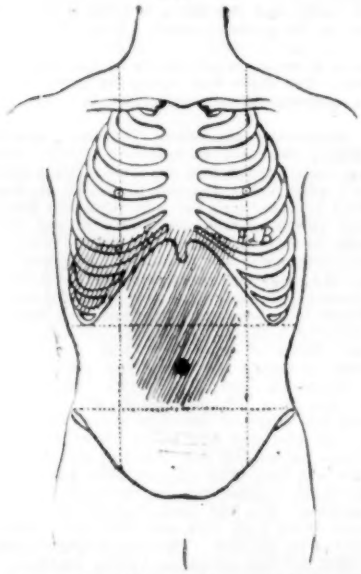
THE first of the following series of cases is an illustration of the occasional beneficial effects of an operation, even though no lesion is discovered. This result is probably most frequently seen in operations for suspected renal calculi, when although no stone can be found relief of all the symptoms follows. Various explanations have been offered, that some slight adhesion has been broken down, that some local congestion has been relieved, that some nerve has been divided, and lastly, that the result is entirely the effect of the operation on the patient's mind. Whichever explanation may be true—and probably each is true in some cases—there can be no doubt as to the reality of the improvement which follows. The third case shows the benefit of early operation in intussusception, especially in very young children.

CASE 1. *Exploratory laparotomy for severe abdominal pain; no disease detected; recovery.*—A married woman, aged 39 years, was admitted into the York County Hospital on August 3rd, 1898, under the care of Mr. W. H. Jalland. For some time previously to her admission she had been suffering from severe gastric pain which it was thought might possibly be due to passing gall-stones, though this was doubtful. She never was jaundiced. She had violent sickness and the pain was so severe that she had had frequent injections of morphia. On admission she was somewhat wasted in appearance, with an anxious expression, and was evidently suffering at times considerable pain, although the region of the pain was somewhat indefinite, being described as above the abdomen. Her weight on admission was 5 st. 7 lb. She was put upon small quantities of peptonised milk and beef-tea, with drachm doses of bromidia when the pain was very severe. As she was not much better on the 26th the stomach was washed out and this was repeated on the 29th. As she was somewhat relieved after this food was gradually increased. There was no necessity to give her any more sedative. She had been kept in bed previously to this, but got up on Sept. 15th and left the hospital considerably relieved on the 24th. She was admitted again on Feb. 16th, 1899, all her symptoms having returned. The same plan of treatment was adopted; the stomach was washed out frequently, small quantities of food gradually increased were given, and she left the hospital much relieved on March 23rd. She was admitted again on July 13th, 1899, the symptoms having returned in a much aggravated form. She

had wasted very considerably and really looked very seriously ill. She begged that some operation might be performed to relieve her pain and trouble; so, at the woman's urgent request, it was decided to perform an exploratory laparotomy which was accordingly done on July 18th under ether. The incision was made in the median line in the usual way above the umbilicus. The stomach was first examined and nothing wrong with it could be detected. It was brought out of the incision and examined thoroughly all over. There were no adhesions nor was there any thickening of the pylorus. The gall-bladder was next examined and found to be perfectly healthy in every way, nor was there anything to be detected in the cystic or common duct. Under these circumstances it was thought advisable to examine no further but to close the wound. After the operation the patient expressed herself as feeling most comfortable. Her temperature never rose above 99° F., and reached that height on only two occasions. The wound was dressed and the stitches were removed on July 26th and she went out of the hospital perfectly well on August 14th. Since then she has been almost entirely free from pain and has increased in weight over a stone. The patient was seen on Oct. 26th and was then perfectly well and had put on 3½ st. in weight.

CASE 2. *Large cyst in the liver (? hydatid or simple cyst); laparotomy; drainage of the cyst; recovery.*—A married woman, aged 28 years, was admitted into the York County Hospital on Sept. 7th, 1899, under the care of Mr. Jalland. She had had three children, the youngest being seven years old. She had had no miscarriages, nor was there any specific history, and her confinements had all been normal. She had had some ulceration of the palate in 1896 and she had on admission some necrosis of bone and a discharge of the sinus in the left lacrymal duct region which preceded the ulceration of the palate. In September, 1898, she had complained of great pain in the left lumbar region and was in bed for about five weeks, during which time she lost weight and flesh. She had first noticed that her abdomen was enlarging about May, 1899. The abdomen had greatly enlarged since, especially during the previous two months. On admission she was found to have a large fluctuating swelling in the upper part of the abdomen in the median line, extending from the upper ribs to some two or three inches below the umbilicus, which was apparently connected with the liver (Fig. 1). It was not tender on pressure, but

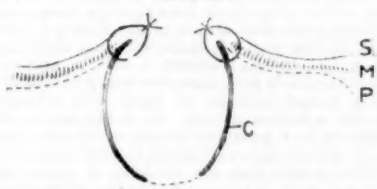
FIG. 1.



The shaded portion shows the extent of the cyst.

was elastic to touch and evidently contained fluid. She had noticed this now for over a year and it was gradually increasing in size. She had not menstruated for a year and she had some impression that the swelling had grown since menstruation had stopped. The girth of the abdomen at the umbilicus was 35½ inches; the largest girth, one and a half inches below the umbilicus, was 36¼ inches. On Sept. 19th, under ether, a free incision was made in the median line over the tumour from the umbilicus to within half an inch of the ensiform cartilage. The abdominal cavity was opened in the usual manner, and a bluish-black tumour presented itself in the wound. On investigation it was found to be firmly adherent to the transverse colon by well-organised fleshy adhesions and also above to the liver. The cyst was tapped with a dagger trocar and the contents, which were of a brownish-black liquid character, were evacuated. Further investigation showed the tumour to proceed from the right lobe of the liver, and the adhesions to the colon were of too firm a character to be separated, so it was decided to drain the cyst thoroughly and to suture it to the opening in the abdominal wall. The opening in the cyst made by the trocar had been closed with a large clamp forceps. The edges of the opening of the cyst were now carefully sutured to the peritoneal surface, as explained in Fig. 2, and a large number of silk sutures were placed

FIG. 2.



C, cyst wall adapted to P, peritoneum; M, muscular abdominal wall; S, skin.

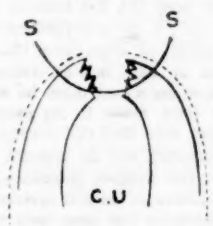
evenly at intervals of one and a quarter inches round the opening. When the cyst cavity had thus been completely shut off from the peritoneal cavity the silkworm-gut sutures were passed through the skin and muscle at the upper and lower ends of the wound, so as to reduce the size of the external opening, and, finally, the edges of the skin were carefully approximated by horse-hair, a large Keith's drainage tube was placed in the cyst, and the wound was dressed as usual. The abdominal cavity had previously been washed out with sterilised water. The patient passed a good night after the operation and on the following day (the 20th) about two drachms of brown fluid were drawn off through the drainage tube. On the 21st it was noted that the patient had wheezed considerably during the night. About a drachm of fluid was removed. On the 22nd, the patient's temperature rose to 101·8° F., with a slight cough. There was a small patch of pneumonia on the right base posteriorly of about the size of a two-shilling piece. On the 23rd the diet was increased to three pints of milk in the 24 hours with tea and beef-tea. The pneumonia had increased in extent, but the patient was expectorating more freely. The wound was perfectly healthy; the respirations were 46 per minute. On the 24th the temperature had gone down with a run from 101·8° to 98°. The pneumonia had not differed much from the previous days; the respiration was much easier, being 33 per minute. The sutures were removed on the 27th day and from this time the patient made an uninterrupted recovery. On Oct. 1st she was practically well.

CASE 3. *Intussusception; laparotomy; recovery.*—A male infant, aged 11 months, was admitted into the York County Hospital on March 31st, 1899, under the care of Mr. Jalland, with the following history. He had had vomiting for 12 hours with mucous and bloody discharge from the anus. On admission there was a distinct tumour to be made out situated in the left hypochondriac region. It was moveable and could be shifted about in most directions, but freely to the right side of the abdomen. Under chloroform the bowel was thoroughly inflated by air, but this made no alteration in the size or condition of the tumour, so the abdomen was immediately opened in the median line two inches above and two inches below the umbilicus. The tumour was discovered in the left hypochondriac region. This was pulled outside and found to be the lower part of the ileum which was invaginated into the cæcum. The top of

the appendix only just appeared. This was reduced by pressure, being squeezed out, and the gut was returned into the abdominal cavity. The bowels were opened by an enema on April 2nd, and naturally every day afterwards. The wound was dressed on the 3rd and the stitches were taken out on the 6th, when the wound was found to be healed in the greater portion of its length. The child's temperature kept up for some time, but that was entirely due to the fact that he was teething. With that exception he had no bad symptoms and he was discharged from hospital perfectly well on May 13th. This shows the advantage of operating on these cases early, as the symptoms had apparently been in existence only 12 hours before admission.

CASE 4. *Cæsarean section; recovery.*—A woman, aged 21 years, was admitted into the York County Hospital on Sept. 25th, 1899, under the care of Mr. Jalland. Labour had commenced on the previous day, when she was seen by Dr. J. G. E. Colby of Malton, who found that her pelvis was extremely distorted and that the conjugate diameter was only two inches and sent her at once into the hospital, where she arrived at about 9 A.M. on Sept. 25th. Upon examination, finding there was no prospect of the child being delivered in the natural way, it was decided to perform Cæsarean section at once. Nitrous-oxide gas, ether, and chloroform were administered and an incision four and three-quarter inches in length was made in the median line, commencing about half an inch below the umbilicus, all the bleeding being stopped by pressure of the forceps. The abdominal wall was very thin and the uterus was almost immediately exposed. The wound was carefully packed round with sterilised pads and the uterus was opened by a vertical incision about three and a half inches long. The placenta was found immediately underlying it and some sharp bleeding occurred. The membranes were quickly separated by passing the fingers downwards and the liquor amnii was allowed to escape. The child was then delivered by drawing on the right leg. Some little difficulty was found in delivering the head. After ligaturing the cord the placenta and membranes were removed. The wound in the uterus was then sutured by four deep sutures, passed so as to include the muscular walls of the uterus (Fig. 3). Between these deep sutures

FIG. 3.



C U, cavity of uterus; S, S, line of suture.

several fine silk sutures were placed, carefully approximating the edges of the cut peritoneum. The abdominal cavity and pelvis were then washed out with sterilised water at a temperature of 110° F., some of which was left in. The abdominal wall was then sutured with half a dozen deep silkworm-gut sutures, including the whole of the constituents of the abdominal wall. A few horse-hair sutures were necessary to bring the edges of the skin together. The time of the actual operation was about 40 minutes. The child (a male) was alive and was delivered in 13 minutes. A hot vaginal douche was given before leaving the theatre. The patient made an uninterrupted recovery. The sutures were removed on Oct. 3rd, and on the 24th she and the child were both perfectly well.

Remarks by Mr. JALLAND.—I am a little uncertain as to whether the cyst in Case 2 was hydatid or not. There were no supplementary cysts discovered in it, nor apparently any cyst wall. Unfortunately the fluid was not examined, so the absolute nature of it was not determined. It may have been an old degenerated hydatid cyst or one of those simple cysts which are occasionally met with in the liver. In any case the result of the treatment was most satisfactory.

GOVERNMENT CIVIL HOSPITAL, HONG-KONG.

A CASE OF TYPHOID FEVER; TWO RELAPSES; RECOVERY.

(Under the care of Dr. J. M. ATKINSON, Principal Civil Medical Officer, and Dr. J. A. LOWSON, Acting Principal Civil Medical Officer.)

A RELAPSE is very common in typhoid fever, and is often thought to be due to incorrect dieting, but this is probably not the case. Every rise of temperature after the fall to the normal in typhoid fever is not a relapse, but in a true relapse all the phenomena reappear. Two relapses are more rare, but three and even four[1] have been seen. For the notes of the case we are indebted to Mr. J. Bell, resident medical officer.

A young German, aged 25 years, was admitted into the Government Civil Hospital, Hong-Kong, on Jan. 7th with a history of five days' continued fever, headache, pain in the limbs, &c. The tongue was furred in the centre but was clean at the tip and edges. Gurgling was heard in the right iliac fossa. The temperature was 104° F. The continued fever lasted for 30 days, the temperature ranging mostly between 101° and 104°. There were crops of roseolar spots, splenic enlargement, and tenderness on pressure over the spleen, epistaxis occasionally, and delirium on the twenty-first day, with a feeble pulse of 144 and constipation. This last was most troublesome throughout the illness. From the thirtieth to the forty-first day the temperature was of the intermittent type, was normal or 99° in the morning and 100° or 103° (105° once) in the evening. From the forty-first to the fifty-fourth day (13 days) it remained normal, and on this day he had a dose of castor-oil followed by great pain in the abdomen with an evening temperature of 102°. The relapse lasted for 20 days, the temperature ranging between 100° and 104°, with dry furred tongue, retention of urine, a dry "rub" at the left base, and a bad pulse throughout. The temperature remained normal for 14 days (up to the eighty-seventh day), when the patient had a dose of two grains of cascara sagrada, followed by much abdominal pain and distress and an evening temperature of 101·8°. This (the second) relapse lasted for 13 days, the temperature varying between 100° and 103°, with low delirium, feeble quick pulse, and great depression. He slowly convalesced and was up for the first time on the one-hundred-and-twentieth day and was sent home to Europe after having been 149 days in the hospital.

Remarks by Mr. BELL.—Two relapses in typhoid fever being rare this case is reported as an instance of the amount of vitality possessed by some patients. He was not a robust young man, having been rejected, I believe, for the German army, and only weighing 108 lb. on the day of admission. The fact that throughout this long illness on an ordinary mattress there were never any signs of bed-sores speaks for the nursing, and the greatest credit is due to Sister Hope (Miss Franklin) and Sister Edith (Miss Maker) for the keen and intelligent interest which they took in the case throughout.

Reviews and Notices of Books.

Lectures on Clinical Medicine. By JOHN LINDSAY STEVEN, M.D. Glasg. Glasgow: Alex. MacDougall. 1900. 8vo, pp. 195, with 37 Illustrations. Price 6*s*.

THIS book contains a series of 15 lectures delivered by Dr. Steven in the Glasgow Royal Infirmary. In the first lecture a full account is given of that rare and interesting disease known as Landry's paralysis, based upon two cases in one of which there was a post-mortem examination. No lesion was found in the central nervous system, but unfortunately the peripheral nerves were not examined. Lesions, as the author says, have undoubtedly been found by competent observers in the peripheral nerves. Changes have also occasionally been noted in the central nervous system. Thus it has been suggested, and not at all improbably, that

[1] Broadbent: Quain's Dictionary of

Landry's paralysis has been made to include more than one disease. Dr. Steven looks upon his cases as lending support so far as they go to the toxæmic theory of the complaint. Some attention is given here to the resemblances between Landry's paralysis and diphtheritic paralysis, but obviously the analogy must not be pushed too far.

Lecture II., on a Mediastinal Tumour Involving the Root of the Left Lung, illustrates the extreme difficulty which is sometimes experienced in the diagnosis of this affection, at least in its earlier stages. The author very properly emphasises the diagnostic importance of recognising any fulness or nodular projections beneath the clavicles or in the neck. A further case of malignant tumour about the root of the lung is described in Lecture VII. Here there were multiple tumours of the integument.

The Schott Treatment of Heart Disease comes under discussion in the third lecture. The author obviously thinks that this method of treatment has been over-estimated, but three cases however carefully studied will not allow of any wide-reaching conclusions being drawn.

Lecture IV., which is undoubtedly one of the most interesting of the series, contains a record of four cases illustrating the influence of syphilis in the production of alarming disorders of the nervous system. The first case was one of syphilitic hemiplegia with Jacksonian epilepsy in a man, aged 46 years, probably due to a gummatous affection involving the motor cortex. There were also present gummatous tumours of the scalp. Rapid recovery took place under mercury and iodide of potassium. This case reminds the reviewer of a similar case under his care which pursued a very varying course under anti-syphilitic treatment. Trephining was eventually had recourse to but unfortunately this patient succumbed and a localised gummatous affection of the meninges and cortex of one Rolandic area was found. The second case was one in which several of the eye muscles were involved and there was severe hemicrania. Complete recovery ensued under treatment with iodide of potassium and mercury. In the third case, of a man, aged 40 years, there were motor aphasia and marked paresis and rigidity of the right arm and hand, preceded by severe headache. There was reason to believe the disease to be of syphilitic origin but no improvement followed anti-syphilitic treatment. The last case occurred in a man, aged 37 years, who had severe and protracted headache with alarming convulsions and mental derangement of undoubted syphilitic origin. The headache and fits were relieved by prolonged mercurial treatment.

In Lecture V., on Infantile Jaundice, the mild form is carefully distinguished from the grave form, which latter is usually associated with serious organic lesions. The author relates in Lecture VI. an interesting case of a spastic hemiplegia following upon enteric fever and terminating in insanity. The patient had thrombosis of the veins in the leg and Dr. Steven thinks that the cerebral lesion was probably of a similar nature.

In Lecture VIII. a case of Marie's osteo-arthropathy, but without any pulmonary lesion, is related. Four cases of muscular atrophy are detailed in Lecture IX.; two are of the kind generally described as progressive muscular atrophy, the other two being of a still more doubtful nature.

In Lecture X. the author describes in detail a case, long under observation, of sclerodermia with hemiatrophy. In an appendix the post-mortem examination is related. Lesions were found in the right anterior horn of the cord and included changes in the multipolar cells and the formation of cavities about the vessels. The author thinks these lesions of the greatest importance in connexion with sclerodemia and hemiatrophy. Cases of multiple cerebral tumour and spastic paralysis, probably of myopathic origin, are related in Lectures XI. and XII. respectively.

The treatment of pleurisy with effusion by tapping is fully described and illustrated by cases in Lecture XIII. A valuable and practical summary of the subject will be found here. In Lecture XIV. a case of splenic leukæmia with a description of the characters of the blood in this disease is given. The last lecture deals with the subject of profuse hæmatemesis due to pore-like erosions of the gastric arteries. Two cases are recorded, in one of which the patient recovered under rectal feeding and saline infusion, but ultimately succumbed to an uncontrollable diarrhœa. In the other case death occurred notwithstanding that a laparotomy was performed. The abrasions in which the minute opening into the vessels are found may be readily overlooked because they are very superficial.

This series of clinical lectures provides some very interesting and instructive reading. The lectures are well written and are very practical. Collected together in this compact form they reflect, as Dr. Steven very rightly says in his preface, the varied nature of the work which falls to the physician in a large general hospital.

The Principles of Bacteriology. By A. C. ABBOTT, M.D., Professor of Hygiene and Director of the Laboratory of Hygiene, University of Pennsylvania. Fifth Edition. London: H. K. Lewis. 1899. Pp. xi.—590. Price 12*s.* 6*d.*

The Hygiene of Transmissible Diseases: their Causation, Modes of Dissemination, and Methods of Prevention. By A. C. ABBOTT, M.D., Professor of Hygiene and Director of the Laboratory of Hygiene, University of Pennsylvania. London: Rebman, Limited. 1899. Pp. 311. Price 14*s.*

OF these two books by Professor Abbott the first is a fresh edition of a work which we have had several occasions to review very favourably in these columns. The fact that a fifth edition of the "Principles of Bacteriology" should be called for within eight years of its first publication is a sufficient proof that our verdict has coincided with that of students and teachers of the subject generally. The character of the book has not been in any way altered in the present edition; it is somewhat increased in size owing to the introduction of some new illustrations and of a certain amount of new matter necessary in a rapidly growing subject where a book must be kept up to date. No alteration has been made in its price. Amongst other changes we may note that the chapter on Immunity has been largely rewritten and an account of Ehrlich's recent speculations on the subject introduced. Throughout the book there is evidence of careful revision, and its thorough and excellent character has been well maintained. It is a pleasure to us again to recommend it as a valuable and suggestive text-book both for students and teachers.

The second book, "The Hygiene of Transmissible Diseases," is not only a new departure for Professor Abbott, but to some extent a novelty in the literature of medicine. We cannot recall any one book which attempts to cover quite the same ground, though T. W. Thompson's section on "The Natural History of Infectious Diseases" in Stevenson and Murphy's "Treatise on Hygiene and Public Health" does so very nearly. The book is stated to reproduce in substance a certain portion of the lectures delivered by the author in his capacity of professor of hygiene in the University of Pennsylvania. It is universally admitted that "public health" has developed into so important a branch of medicine that it demands separate text-books and lectures. It is further becoming apparent that the "transmissible" diseases bulk so largely in public health and form so compact a subject that there is nothing inappropriate in their treatment in a separate book. If any justification for so doing were required it is, we think, to be found in the present volume. A vast amount of time and trouble is saved to the student by the collection in one small

volume of some 300 pages of the principal facts concerning the nature of infective diseases, their causation and prophylaxis, which otherwise must be sought laboriously in scattered medical literature. There are no novel facts brought forward—indeed, the writer has deliberately excluded all that is not well established. The merit of the book lies in the compact but lucid treatment of a mass of accurate and well-arranged detail on a definite branch of hygiene. The subject gains in interest by this collective treatment and the tables and diagrams which are freely introduced serve to enforce the lessons taught.

The general plan of the book is as follows. After some general introductory remarks, Section I. deals with the causation of disease and naturally of infective disease in particular. The writer adopts the usual terminology, speaking of the microbe as the direct or exciting cause and the various other factors (insanitary surroundings, sex, age, &c.) as predisposing causes. The different factors are discussed in detail and illustrative charts are introduced. We would suggest that in introducing "comparative mortality" tables it would have been well to state explicitly what such tables mean and how they are constructed. Section II., forming the larger part of the book, deals with the transmissible diseases in detail, that is, with the specific fevers and all other infective diseases, including the animal ento-parasites, such as tapeworms. There is no attempt to deal with the ordinary medical aspects of these affections. They are shortly defined, a brief account is given of the specific micro-organism where such is known, illustrated by a drawing or photograph, and then the distribution, modes of infection and dissemination, and details of prophylaxis are in each case discussed in full. Section III. deals with general prophylactic measures, commencing with a short and excellent critique of the theories of natural and acquired immunity. The various chemical and physical means of disinfection are then described in detail, and the book concludes with an account of the management of the sick-room in infectious cases and a short chapter on quarantine.

There is little room for criticism as to the care with which Professor Abbott has marshalled and arranged his facts. In his desire to avoid contentious matter he has abstained from mentioning in any detail the facts which have been collected in this country as to the conveyance of scarlet fever and diphtheria by the milk of cows believed to be suffering from analogous infectious disease, and which perhaps deserve more than the passing allusion which he makes to them. But he has included nothing which the student of hygiene ought not to be well acquainted with, and the style and manner in which the information is conveyed leave nothing to be desired. We heartily commend the book as a concise and trustworthy guide in the subject with which it deals and we sincerely congratulate Professor Abbott on having written so valuable a work.

LIBRARY TABLE.

Mock Nurses of the Latest Fashion. By F. J. GANT, F.R.C.S. Eng. London: Baillière, Tindall, and Cox. 1900.—This little book is mainly a reprint of papers which appeared during 1899 in the *Medical Press and Circular*, but some additional chapters have been added to the original papers. Mr. Gant pleads strongly for the State registration of nurses, arguing that the uncertificated nurse may be an infamous and designing woman. That of late the term "nurse" has been made to cover those belonging to the oldest profession in the world there can be no doubt, and Mr. Gant's picture of masseuses is not overdrawn, but this masquerading of bagnios as adjuncts to medical treatment has now been suppressed by the police. Although there are some private nurses who are not all that they should be, yet Mr. Gant's pictures of the wicked private nurse are overdrawn. The book calls attention to an evil which doubtless does exist to a certain extent, but its message would have been far more forcible if it had been far less exaggerated.

Silex Scintillans. By HENRY VAUGHAN. London: J. M. Dent. Pp. 238. Price 1*s.* 6*d.* net.—This edition of a too little known work forms one of the volumes of the Temple Classics which Mr. Israel Gollancz is editing for Messrs. Dent. Vaughan was born in 1622 in the parish of Llansaintfraed, Brecon, being a twin with his brother Thomas. Henry went to Oxford and also studied law in London, but eventually turned his attention to medicine. Where he obtained his diploma is not known, but he commenced to practise as a medical man in 1645. His poems, although marked at times by the love of conceits so characteristic of the times in which he wrote, are generally of very high order. Few English or indeed any poets have written a more majestic passage than the opening of the poem called "The World":—

> "I saw Eternity the other night
> Like a great Ring of pure and endless light,
> All calm, as it was bright;
> And round beneath it Time, in hours, days, years,
> Driven by the spheres,
> Like a vast shadow moved, in which the world
> And all her train were hurled."

He was a good scholar and probably acquainted with the writings of the Neo-Platonists, and in the poem called "The Night" there is a curious echo of Dionysius the Areopagite. The last stanza of "The Night" begins:—

> "There is in God, some say,
> A deep but dazzling darkness ....."

and so Dionysius, "The divine darkness is that light inaccessible wherein God is said to dwell." Messrs. Dent are much to be congratulated for having afforded the opportunity of becoming acquainted with such a writer as Vaughan to many whose purses are not overburdened. The type and paper are all that could be desired.

New Inventions.

A SANITARY DUSTBIN.

THE aim to make a dustbin strictly speaking a sanitary receptacle is admirable, and he who succeeded would indeed be recognised as a benefactor, since disease has often been traced to this unsatisfactory method of storing our dust and garbage until it can be taken away. Mr. George Olliver, of 21, Elder-place, Brighton, has made a definite attempt to construct a dustbin on sanitary principles. He has done this by constructing the bin with a base larger than the top with sides converging towards the upper ends but diverging towards the base. The front of the bin is inclined in a rearward direction from the lower to the upper end. The bin is also fitted with a sliding removable bottom, a removable sifter, and a removable lid turning on detachable hinges. The essential points in the construction of this bin would undoubtedly help towards a better state of things in regard to the condition of the refuse contained in it and its removal may be effected with the least possible nuisance arising. But whether it will serve as an improved means of storing and removing house refuse will depend entirely, as is the case with many another excellent appliance however well it may be designed, upon the way in which it is handled and upon what is put into it. Is there any conceivable thing which the ordinary domestic servant does not consider a fit object for the dustbin?

THE "LONDON" MICROSCOPE.

A GOOD microscope is an essential part of a student's outfit, but makers have found it very difficult to produce microscopes with powers and definition strong enough to be useful at prices suitable to the student's purse. Certain continental makers have, moreover, been able to produce

microscopes for students at lower figures than the English makers have cared to attempt. Messrs. Beck of Cornhill have recently submitted a microscope to us which would seem to be a thoroughly practical instrument for students' purposes. We found it to give good definition and a flat field. The mirror in the cheaper microscope, which has no sub-

stage, works rather too close to the stand to be convenient, otherwise we have nothing but praise for the instrument. The illustration shows its appearance. The price of the instrument in a case, including stand, two objectives of two-thirds and one-sixth of an inch respectively, one eyepiece, and a concave and plain mirror, is £5 12s. 6d. The addition of the focussing substage and of the double nosepiece increases the price.

OPENING OF THE MEDICAL SCHOOLS:

WINTER SESSION 1900-1901.

LONDON.

St. Bartholomew's Hospital.—The session will begin on Monday, Oct. 1st. The old students' dinner will be held on the same evening in the great hall of the hospital, Mr. H. J. Butlin, F.R.C.S., in the chair.

Charing-cross Hospital.—The session will begin on Tuesday, Oct. 2nd, when the Right Honourable Lord Lister, P.R.S., will deliver the third biennial Huxley Lecture, on Recent Advances in Science and their Bearing on Medicine and Surgery. This lecture will be delivered in the Anatomical Theatre of the Medical School at 4 P.M. A conversazione will be given by the students' societies in the school buildings on the evening of Oct. 1st, and the old students' dinner will take place at the Hotel Cecil on Tuesday, Oct. 2nd.

Guy's Hospital.—The session will begin on Monday, Oct. 1st, on the evening of which day a house dinner of the Students' Club will take place in the college dining hall. Application for tickets to the dinner should be made to Mr. A. W. Ormond, the secretary of the Students' Club, Guy's Hospital, S.E. The first meeting of the Physical Society will be held in the new Physiological Theatre at 8 P.M. on Saturday, Oct. 6th. Sir Samuel Wilks, Bart., F.R.S., will preside, and a paper will be read by Mr. F. Curtis, Notes from an Ornithological Cruise in the North Polar Seas. After the meeting a conversazione will be held in the new laboratories and class-rooms. All past and present students are cordially invited to the meeting.

St. George's Hospital.—The session will begin on Monday, Oct. 1st, with an introductory address by Dr. F. G. Penrose, physician to the hospital. The distribution of prizes will take place early in November, and will be made by Sir Michael Foster, M.P., F.R.S., &c.

King's College Hospital.—The session will begin on Monday, Oct. 1st.

London Hospital.—The session will begin on Monday, Oct. 1st. The old students' dinner will be held in the college library, Dr. Gilbart Smith in the chair.

St. Mary's Hospital.—The session will begin on Monday, Oct. 1st, at 3.30 P.M., with an introductory lecture by Mr. H. S. Collier, surgeon in charge of out-patients to the hospital, and lecturer on practical and operative surgery in the medical school. The annual dinner of past and present students will take place on Wednesday, Oct. 3rd, at the Whitehall Rooms, Hôtel Métropole, Dr. W. B. Cheadle, senior physician to the hospital, in the chair.

Middlesex Hospital.—The session will begin on Monday, Oct. 1st, at 3 P.M. Dr. T. Clifford Allbutt, regius professor of physic in the University of Cambridge, will distribute the prizes gained during the previous year and deliver an address. The annual dinner of the past and present students and their friends will take place at the Trocadero the same evening at 7 o'clock precisely, Mr. William Lang in the chair.

St. Thomas's Hospital.—The session will begin on Tuesday, Oct. 2nd. The prizes will be distributed by Sir William Mac Cormac, Bart., K.C.V.O., in the Governors' Hall on Tuesday, Oct. 2nd, at 3 P.M. During the afternoon the various departments of the hospital and school will be open for the inspection of visitors. The annual dinner, in which all former and present students are invited to join, will take place the same evening at the Whitehall Rooms, Hôtel Métropole, at 6 for 6.30 o'clock, Dr. C. Taylor Aveling in the chair.

University College Hospital.—The session will begin on Monday, Oct. 1st, at 4 P.M., when the Dean's report on the progress of the medical school will be read, after which an introductory lecture will be delivered by Professor G. Vivian Poore.

Westminster Hospital.—The session will begin on Monday, Oct. 1st. The annual dinner will take place on the opening day, Dr. William Henry Allchin in the chair. The secretary of the dinner is Mr. E. Canny Ryall. The annual distribution of prizes will take place during the session.

London (Royal Free Hospital) School of Medicine for Women.—The school will reopen on Monday, Oct. 1st, when the introductory address will be given by Miss L. B. Aldrich-Blake, M.D., M.S. Lond.

London School of Tropical Medicine.—The session will begin on Monday, Oct. 1st.

Pharmaceutical Society of Great Britain.—The inaugural address will be given on Oct. 1st, at 3 P.M., by Professor W. Ramsay, F.R.S., of University College, London.

PROVINCIAL.

University of Birmingham.—The session will begin on Monday, Oct. 1st.

Yorkshire College, Leeds.—The session will begin on Monday, Oct. 1st.

University College, Bristol.—The session will begin on Monday, Oct. 1st.

University College, Cardiff.—The session will begin on Monday, Oct. 8th. The introductory address will be delivered by Sir J. Williams on Wednesday, Oct. 10th.

University College, Liverpool.—The session will begin on Monday, Oct. 1st. The Lord Bishop of Liverpool will give the opening address and distribute the medals and prizes on Saturday, Oct. 13th, at 4 P.M.

Owens College, Manchester.—The session will begin on Monday, Oct. 1st.

University of Durham.—The session will begin on Monday, Oct. 1st.

University College, Sheffield.—The session will begin on Monday, Oct. 1st.

SCOTLAND.

Anderson's College, Glasgow.—The session will begin on Thursday, Oct. 18th.

St. Mungo's College, Glasgow.—The session will begin on Thursday, Oct. 18th.

Queen Margaret College, Glasgow.—The session will begin on Friday, Oct. 19th.

IRELAND.

Queen's College, Belfast.—The session will begin on Tuesday, Oct. 16th.

Queen's College, Cork.—The session will begin on Thursday, Oct. 18th. The lectures will commence on Monday, Oct. 22nd.

University of Dublin.—The session will begin on Monday, Oct. 1st.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 8, 1900.

IT would be difficult to exaggerate the credit due to the Bishops for their interest in the promotion of legislation for effecting temperance reform. The remarkable discussions in Parliament during the late session must have convinced the Government that both parties in the State are of opinion that Parliament has yet more duties to discharge in connexion with the "superfluous drinking" of the country. The reluctance of the Government to undertake such legislation has impressed both its supporters and its opponents. The preoccupation of the country in the present session has been so complete as to give some colour of excuse to this reluctance, but enough has happened even this year both in the House of Commons and in the House of Lords to show that the country is in no mood to allow the results of the work of the Royal Commission on the Liquor Laws to be regarded as waste-paper. It was inevitable that there should be some difference of opinion in the Commission, but the enormous pecuniary interests involved and the popular habits of the nation were a security that no free play would be given to intemperate teetotalism desiring to treat men as children and Englishmen as Mahomedans. On the other hand, various influences have come into play in the cause of true temperance which cannot be ignored. Some great physicians and surgeons have sounded a note of warning and made it clear to all intelligent people that the present scale of consumption of alcohol has no reason in sense or science, and that alcohol generates disease wholesale, physical and mental, and is responsible for 25 per cent. at least of our insanity and for a very large proportion of our vice and crime. One of the most remarkable facts in this discussion of late years has been the significant and ominous emphasis with which our military leaders have advocated temperance and have insisted on the partial or total exclusion of alcohol from the diet of their troops in time of war. The tone of their testimony could scarcely have been more earnest if they had seen some great catastrophe due to the careless use of alcohol. We all know how disastrous the habit of drink may become in the case, say, of a medical man charged with the care of an individual life at a crisis of accident or disease. *A fortiori* is the use of alcohol fraught with peril to men who are charged with great responsibilities as are soldiers and sailors. This has been now widely recognised, and above the enjoyment of alcohol which characterises us as a nation there has risen a public opinion—intelligent, moral, and religious—which demands that alcoholism shall be restrained, and must be restrained if sanitation and social happiness are to be advanced, and if the nation is to hold its own in the new era of responsibility and competition on which all living and dominant races are now entering.

Amongst the forces which will compel politicians and statesmen to deal with the vice of drunkenness, or as the majority of the Royal Commissioners euphemistically put it, "superfluous drinking," the Bishops have ranked themselves most creditably and they have been well supported by their own clergy and by the ministers of all denominations. They have not contented themselves with setting a good example, but in their elevated place in the legislature they have spoken with no uncertain sound and they have succeeded in showing that in the House of Lords there is a strong feeling in favour of legislation. Since that memorable debate, in which the Bishops nearly defeated the Government, they have occupied themselves in putting into the form of a Bill, or rather of three separate Bills, their legislative proposals, based on those recommendations which were practically assented to by both parties in the Royal Commission. These Bills do not by any means exhaust the recommendations so assented to, and we miss two or three in particular to which we are inclined to attach importance. One of these would very properly give to the licensing authority full control over all "off" wine and spirit licences, including those granted to grocers and restaurants. The demoralisation of women by the grocer's licence is a matter of general belief. Little is said about the demoralisation of the grocer's business by the introduction of the sale of alcoholic drinks, but it is very real. The groceries now play quite a secondary part in the business and tend to recede more and more into back premises. In any new Bill full authority over this kind of licence must be given to the licensing authority. It is vain to talk of curtailing the number of public-houses, perhaps at a great cost, and then to leave uncontrolled the enormous extension of the trade in alcohol which is involved in licences for its sale granted to grocers, confectioners, and druggists. Other points which are not, we think, included in the draft bills of the bishops are control of the licensing of old-fashioned beerhouses, the sale of drink to children under 16 years of age, and the employment by licensing authorities of persons of some social standing to visit and occasionally report on the condition of licensed premises. We attach great importance to this last recommendation, which is made both in the report of the majority and in that of the minority of the Commissioners. It is scarcely to be expected that the police, familiarised with the drunkenness of the street—which, by the way, all the Commissioners regard as an offence—should have a quick eye to the irregularities of publicans. It is highly desirable that there should be a certain number of men of higher position who should inspect the licensed houses of a district.

These are details and they do not touch the underlying question of compensation. This matter must be faced and settled by the Government of the day, fearlessly and on right principles. As a profession we medical men can and should help the Government and urge it to the discharge of this great duty. Every year adds to the difficulty of it. They are no friends of Parliament who advise it to remain with folded hands and cry "non possumus" on this subject. The enormous expenditure on drink—even if drink itself were innocuous—implies a corresponding abstraction of wealth from useful and beneficial uses. But drink is not innocuous. It is the most powerful and fascinating of al

means of degradation and disease which unfortunate human nature can find to debase itself. Every medical practitioner sees illustrations of this almost every day of his life. The drunkenness of women is increasing. Many think that this begins with the grocer, but it certainly does not stop there, for women enter the public-houses in great numbers everywhere. It would seem to us fitting that before the new Parliament begins its duties and even before it is elected the leaders of the medical profession should combine to convince the front-bench representatives of the great political parties that the alcohol question is above all party interests, and that in dealing with it they should act together and act with all their strength. The bishops have set us an example and we of the medical profession have also our religious duties.

QUESTIONS have lately arisen (1) as to whether it would be legal to conduct occasional dissections of a part of a human body upon private premises not duly licensed for the practice of anatomy; and (2) if such dissections took place upon whom, if discovered and pronounced illegal, the penalty would fall. The Act regulating schools of anatomy is the Anatomy Act, 1832 (2 & 3 Will. IV., c. 75). The idea of the Act was to check the irregular practice of anatomy and the abuses to which such practice gave rise. The practice even led to murder in order to get an ample supply of bodies. Briefly summarised the Act gives to the Secretary of State for Home Affairs the power to grant licences to practise anatomy and to appoint inspectors for schools of anatomy, and it regulates the removal of dead bodies for the purpose of anatomical examination. It also permits (Section 10) "any Member or Fellow of any College of Physicians or Surgeons or any Graduate or Licentiate in Medicine, or any person lawfully qualified to practise medicine in any part of the United Kingdom, or any professor or teacher or student of anatomy, medicine, or surgery having a licence from the principal Secretary of State [in Great Britain] or Chief Secretary [in Ireland] to receive or possess for anatomical examination or to examine anatomically the body of any person deceased" if permitted by the person in lawful possession of such body, &c. But it forbids (Section 12) "any party to carry on or teach anatomy at any place, or at any place to receive or possess for anatomical examination, or examine anatomically, any deceased person's body after removal of the same, unless such party, or the owner or occupier of such place, or some party by the Act authorised to examine bodies anatomically, shall, at least one week before the first receipt or possession of a body for such purpose at such place, have given notice to the said Secretary of State or to the Chief Secretary of the place where it is intended to practise anatomy."

Throughout the Act the word "body" is alone used; and the question arises as to the application of the Act to parts of a body. Would it be lawful to dissect an arm or a leg or a brain on private premises unlicensed for the study of anatomy? In these days of private tutors and "coaches," and of the increasing numbers of students who enter for degrees in science as apart from degrees in medicine, but who want to do a course of practical anatomy, the question is one of some importance. On a literal reading of the law there does not appear to be any objection whatever to limited dissection on unlicensed premises. The Act deals with "bodies" and "bodies" alone. It assumes or expressly states all the way through that anatomists are concerned with "bodies" alone and not with parts thereof. It makes no provision to check the coöperative purchase of a body and the distribution of its component parts for dissection on premises other than those to which the body has been removed. Would the buyer and remover of a leg or a brain, or any other person concerned in buying or removing, come under the penalties set out in Section 18 of the Act? Would a student who conducted dissection of such parts in private be liable? Would the owner or occupier of such place become liable? It scarcely seems that he would be directly liable, but he might indirectly be brought within the grip of the law if, as would perhaps be the case, Section 12 (already quoted) were held to cover all practising or teaching of anatomy, whether the subject be a whole body or only a part. The exact words, as already quoted, refer only to "body"; but the words "it shall not be lawful for any party to carry on or teach anatomy at any place unless such party, &c., shall give notice, &c.," might be held to apply to a part of a body. The interpretation would be strained and scarcely justified at all if the words of the paragraph be read together, and if the words as to giving notice "at least one week before the first receipt or possession of a *body*" be borne in mind. But it is obvious that were such a course allowed as the removal of a portion of a body for the purposes of anatomical examination to any place other than that to which the body was originally consigned in accordance with the Act, the irregular practice of anatomy would become extremely difficult to prevent; and the practice of anatomy in any form in a private house must of necessity be objectionable for sanitary reasons, as well as for the sinister reasons that led to the passing of the Act.

A curious difficulty might arise under Section 13 of the Act even if it were held that no offence had been committed under Sec. 12 or any other section. Sec. 13 provides that every such body removed for anatomical purposes shall be placed "in a decent coffin or shell," and the party removing the same shall arrange for its decent interment in due course. Now if "such body" were deprived of an arm or any portion for private dissection elsewhere would the body to be buried be such body as was removed? Apparently on a strict reading of the law it would be necessary to reconstitute "such body" by bringing together again any part removed for dissection elsewhere before the burial of "such body" could take place as contemplated by the Act. It would be a terrible strain on the words of the Act to maintain that any *portion* carried about must be in a decent coffin or shell, as the use of the term "body" is so explicit. What after all is a body within the law? How many of its members may be lost or removed before it ceases to be a body or a corpse? No legal decisions are traceable on these points. On the whole it would be safer for "coaches" in anatomy and for students who desire to dissect in their homes to apply for a licence before practising anatomy on unlicensed premises, or permitting or conniving in any way whatever at such dissecting. Licences can be obtained by any of the persons enumerated in Section 10 "on

application from such party for such purpose countersigned by two justices of the peace acting for the county, city, borough, or place wherein such party resides, certifying that to their knowledge or belief such party so applying is about to carry on the practice of anatomy." The fee payable to the Exchequer on the grant of a licence is only £2 2*s.*, but offences against the Act are misdemeanours and on conviction are punishable by imprisonment for a term not exceeding three months or by a fine not exceeding £50, at the discretion of the court.

ONE of the most interesting discussions at the recent meeting of the British Medical Association was that on "The Pathology of Cirrhosis of the Liver in Adults and Young Children." The discussion was opened by Dr. ARTHUR VOELCKER, who commenced by giving an interesting historical survey of the views held by various authorities from the time of LAENNEC, who was the first to employ the term "cirrhosis" as applied to the liver. Dr. VOELCKER naturally laid stress upon the efforts that had been made to establish satisfactory classification of the varieties of hepatic cirrhosis. The usual classification adopted was to divide the cases into two main divisions—namely, atrophic and hypertrophic. Some observers were of the opinion that there was no essential distinction between these two forms. An examination of a number of sections of cirrhotic livers had left Dr. VOELCKER with the impression that there was a very distinct difference between the peripheral and the intercellular forms. He considered that while it was true that in the peripheral forms (the multilobular and monolobular forms) a slight degree of intercellular sclerosis existed and while in the intercellular form a slight degree of peripheral sclerosis was met with, yet there was never any difficulty in determining to which category the chief change should be referred; though he did not think that a microscopical section would enable the physician to form an accurate idea of the naked-eye appearances of the organ. Much of the interest of the discussion was derived from the different views as to the origin of the connective tissue apart from the variety—that is to say, as to whether the primary change was in the liver cell and the cirrhosis secondary to this, or whether the fibrosis was primary and the changes in the liver-cells secondary. Dr. VOELCKER regarded cirrhosis as a widespread, recurrent, chronic, degenerative process associated with regeneration of the parenchyma. Opposed to this view was the one that the changes in the liver cells were secondary to the presence of the connective tissue. Although it is true that degeneration of the liver cells is found with cirrhosis, yet the speaker maintained that there was no relation between the amount of cirrhosis and the degree of degeneration. Dr. VOELCKER, after quoting other authorities, suggested that it seemed to be most reasonable to see in cirrhosis of the liver the effects of one or more poisons both in the liver cells and in the connective tissue, and the occurrence of degenerative or regenerative processes would depend on the nature of the poison and on the power possessed by the liver cell to resist it. Professor FLEXNER brought forward experimental evidence that lesions of the liver cells precede changes in the connective tissue, and demonstrated from his specimens the existence of a considerable amount of newly formed elastic tissue in addition to the connective tissue so universally recognised. Dr. LAZARUS-BARLOW from his observations drew the inference that in the case of hepatic cirrhosis there was first a destruction of the hepatic cells themselves, either as the result of the action on them of alcohol or of some form of bacterial poison, and that subsequently there occurred an over-growth of the normal fibrous tissue of the liver to fill up potential lacunæ. He further urged that in any microscopical picture these features would be found side by side; but since the destruction of hepatic cells must be a more or less gradual process—otherwise the onset of the disease would not be so insidious as it undoubtedly was—there was every reason to expect that signs of a rapidly forming and young fibrous tissue would be wanting, and this was found to be actually the case.

Another feature of the subject which occupied the attention of the meeting was the experimental production of hepatic cirrhosis. This aspect in the etiology of the condition has had great attractions for investigators, but a study of the work up to now accomplished by no means convinces us that the suggestion (first brought into prominence by Professor ADAMI) that cirrhosis of the liver is due to a specific micro-organism has been proved by experiment. It is true that localised patches of cirrhosis have been produced in certain lower animals by the injection of bacteria or their products, but no widespread increase of the fibrous tissue, as is seen in hepatic cirrhosis in man, has yet resulted. Mr. A. G. R. FOULERTON presented a contribution to the discussion from Professor LUDVIG HEKTOEN. His investigations showed that in guinea-pigs the subcutaneous injection of about one cubic centimetre of a bouillon culture produced in addition to local changes beneath the skin necrosis with cirrhosis of the liver. These results were, however, by no means constant and in other animals (dogs and mice) the condition of the liver was still less altered. The author of the paper himself went no further than to say that "the observations had seemed to him to be of some interest in their suggestiveness of a somewhat similar course of events in some instances of human cirrhosis." Dr. THEODORE FISHER argued that as some of the acute and sub-acute inflammations of the kidney were due to septic micro-organisms or their products, an interstitial hepatitis might arise in the same way, and he quoted cases which seemed to him to bear out the view suggested by the experiments of Professor HEKTOEN. It is undoubted that occasionally fibrous changes may be produced in the liver by the action of micro-organisms, but there seems to be no proof that the condition generally understood by the term "cirrhosis of the liver" is brought about in this manner. The remarks of Dr. VOELCKER on this point were forcible and even convincing. His experience in morbid anatomy has convinced him that in necropsies in patients who have died after diphtheria, typhoid fever, and other infectious diseases, cirrhosis of the liver is by no means common, and yet if that condition were due solely to bacillary infection these are precisely the cases in which it might be expected that such fibrous changes would be found. And he further pointed out that the chief ages at which cirrhotic livers were found were either in the first two or three years of life or between

the ages of eight and 10 years, and then not again until after 25 years; from this he concluded that the severe and frequent intestinal catarrh, undoubtedly of bacterial origin, to which children of all ages were so prone, could have little, if any, effect on the production of the cirrhosis.

The discussion was of genuine value, for it furnished an opportunity for taking stock of our knowledge of the pathology and etiology of hepatic cirrhosis. That observers are still not unanimous on the many points mentioned in the debate was quite evident; but it was also demonstrated that much useful work is being done in the direction of elucidating the true nature of a common affection. The pathology of cirrhosis of the liver must still be the subject of investigation probably for some time, but such debates do much to stimulate the work of the observer. New recruits are gained to pathology and workers are encouraged either to persevere upon their old lines or to adapt their methods to the methods of other workers—all of which things make for eventual knowledge.

A CONSIDERABLE amount of interest has been excited by the case of alleged cruelty to a lunatic which was recently decided at Bow-street Police-court. We shall briefly review the facts of this case as revealed in the course of the magisterial examination. ROBERT EDWARD HUTTON, aged 36 years, was a congenital idiot and had resided with his brother, Mr. JOHN HUTTON, who is a medical man, since 1892. A sum of from £80 to £90 per annum was allowed for his maintenance. Until about six months ago he lived in his brother's house, but then his habits, it is alleged, having become objectionable, another arrangement was made. The manner in which this was carried out was as follows, the facts being elicited from witnesses under examination. A bed, bedding, and a few chairs were placed in a harness-room at the end of the stable-yard attached to the dwelling-house. This was the lunatic's sleeping apartment. Close at hand in the yard an area six feet by four feet was fenced off and partly roofed over. A seat was placed within it. This inclosure served as a kind of outside sitting-room for the imbecile. No regular attendance appears to have been provided beyond the services of the coachman attached to the establishment. It was asserted by some witnesses that actual cruelty was resorted to at times and that Mr. JOHN HUTTON had used a cane when his brother was refractory. The evidence on this point was somewhat conflicting, but it was admitted by the defence that a cane had been used chiefly to frighten but occasionally for the purpose of chastisement.

Legal and medical opinions on the case were not quite in accord. Dr. NICOLSON, C.B., one of the Lord Chancellor's visitors in Lunacy, who visited the house under an order of the Lord Chancellor, stated his view that the conditions of the imbecile's life there were prejudicial to him, since he did not receive that careful and constant attention which he required. Dr. HENRY MAUDSLEY, who also visited the house under instructions from the Lord Chancellor, gave similar evidence. Sir FRANKLIN LUSHINGTON, the chief police magistrate for London, who heard the case at Bow-street, himself paid a visit of inspection. His view was that every reasonable care had been taken for the personal comfort of the poor lunatic, and further that the allegations of actual cruelty rested upon no solid foundation. As regards the accusation of cruelty, which is in some ways the most important element in the case, we quite believe that the opinion of the learned magistrate was the right one. And we are glad to think that no grounds exist for suspecting a member of our profession of cruelty towards an unfortunate being who had the double claim on him of being an idiot and a brother. We are, however, convinced that the view taken by Dr. NICOLSON and Dr. MAUDSLEY on the question of adequate supervision and attention is the more correct. We cannot but think that a serious error of judgment was committed in the arrangement by which the lunatic was removed from the shelter of the house and allowed to spend his nights and much of his daily life by himself. Such unfortunate persons require more constant care than other people. For want of this care an accident may occur at any time, and it was by luck rather than through domestic or professional forethought that such an accident did not actually occur. The effect of isolation, moreover, is always more or less to aid a process of mental deterioration where this is present, and it would have been better in every way had this unfortunate sufferer been kept in contact with interesting surroundings. In the end the only offence proved in this case against Mr. JOHN HUTTON was the technical one of housing a lunatic for profit without the customary licence. Such an error might under the circumstances have been almost disregarded, and as a matter of fact very slight importance was attached to it. The position of the imbecile up to the time of his removal from his brother's house was practically that of a boarder among relations, and it was so in virtue of a family agreement conceived with the best intentions. This fact was recognised and only a nominal fine was imposed. The defendant's coachman, who was largely left in charge of the lunatic, was fined £5 for cruelty.

The well-being of lunatic patients, as is now generally admitted, is most surely guaranteed when they are committed to the care of strangers. Experience has abundantly proved that the influence of a relative, however well-intentioned, is not only not salutary, but is even prejudicial. There is a tendency on the part of relatives to be either too kind or too severe. Moreover, we must take into account the reliance which most invalids place on those with whom they are familiar. This reliance constantly opposes by its mere inertia that awakening of the curative power of will which it is the object of all mental treatment to encourage. Then, again, the watchfulness that must be maintained in view of the volcanic impulses of the insane person furnishes another strong reason for his removal to an establishment where it is the every-day rule of the place to anticipate mental explosions. Such a course argues no unkindness but the contrary, due regard being had, of course, to the character of those in whose care he is placed. In the present instance it has proved regrettable in more ways than one that the home system of treatment was preferred, though doubtless the primary motive which prompted this course was that of parental goodwill. Although Mr. HUTTON is himself cleared of the

accusations of cruelty the man whom he constituted his brother's attendant has been fined for cruelty. Again medical men will surely endorse the views of Dr. NICOLSON and Dr. MAUDSLEY that from a medical point of view Mr. HUTTON did not do the best possible for his brother. Granted that he did all that he could in the circumstances, it remains that the circumstances were wrong. The environment in which the lunatic was kept was entirely unsuitable to his condition, and the personal kindness of Mr. HUTTON did not counterbalance the disadvantages of the surroundings.

Annotations.

"Ne quid nimis."

THE WORK OF SIR JOHN BENNET LAWES.

IT is most satisfactory to learn that the magnificent work of research which the late Sir John Bennet Lawes commenced in 1837 is to be carried on in perpetuity, according to the provisions of a trust deed which Sir John Lawes executed in 1889. The world-famous Rothamsted experiments do not therefore cease with the death of the man who founded them. This is all the more fortunate since we are only just beginning to learn the nature of the rôle of bacteria in aiding certain plants directly to assimilate the nitrogen from the air. It is curious that the wonderful series of experiments which Sir John Lawes instituted should have led him to the positive belief that plants derived their nitrogen solely from the soil. Before, however, it became known with certainty that bacteria aided in the fixation of nitrogen directly from the air, Sir John Lawes, with his able partner in research Sir J. Henry Gilbert, observed that whilst the nitrogen in most crops can be accounted for by the combined nitrogen supplied to the land in the form of manures and in rain water, yet in the case of particular leguminous crops, such as peas and beans, there is a quantity of nitrogen acquired which cannot be accounted for as being derived from these sources. Chiefly by the conclusive experiments of two German investigators, Professor Hellriegel and Dr. Wilfarth, and of a Frenchman, M. Berthelot, we now know that this nitrogen is derived from the atmosphere, and further that this assimilation of free nitrogen is dependent upon the presence of certain bacteria flourishing in and around the roots of the plants. The greatest of all arguments in favour of this view is that when the soil is sterilised no such fixation of atmospheric nitrogen takes place. Some go so far as to say that microbes made our nitrate kings, the huge beds of Chili saltpetre being regarded as products of the nitrifying organism. Recent investigation has shown that each particular leguminous plant is provided with its own particular micro-organism which leads to the fixation of free nitrogen. Cultivations of these organisms are now prepared for inoculating the soil by means of which the availability of nitrogen is increased which benefits the particular crop. The cultures known as "nitragin" are supplied on a commercial scale to agriculturists, and so far the results have been promising. To Sir John Lawes we owe practically all our knowledge of the requirements of all kinds of growing crops. He showed when nitrogen was needed, when potash was indicated, and when phosphates were demanded. The fruitful observations which he made on these points led to the establishment of an enormous industry in which England still leads the way—namely, the manufacture of artificial fertilisers. He showed how phosphates could be made available for the building up of the plants by treating the insoluble lime salt with sulphuric acid, which results in the production of a soluble acid phosphate known commercially as super-phosphate. Again, Sir John Lawes pointed out the advantage of dressing the ground with ammonia and nitrates, and this discovery of how to minister to plant life has had an enormous influence on the industry and wealth of the world. Ever practical in carrying out his ideas, Sir John Lawes was not behind as a student and exponent of pure science, and the journals of the learned societies contain a wealth of scientific contributions from his pen. A great man has indeed passed away in the person of Sir John Bennet Lawes; but, more fortunate than many great men, the labour of his life will ever remain as a monument of his genius and of his devotion to the best interests of mankind.

THE ART OF DIAGNOSIS.

THE best reason for cultivating the art of diagnosis is that it is at the root of all success in the practice of medicine. For good practitioners this reason will supersede all others, but there is another one that may be more efficient as a stimulus to some—viz., the fact that in regard to a large section of the cases of infectious disease there is a chance of errors of diagnosis being detected and even published. This fact is illustrated in every edition of the annual report of the Metropolitan Asylums Board Hospitals. In the last number of the report for the year 1899 a list of such errors is given. The principal of these have regard to scarlet fever, diphtheria, and enteric fever. In the case of scarlet fever the errors were 3·9 per cent.; of diphtheria, 7·4; of enteric fever, 17·3. Some error is almost unavoidable, but it should be reduced to a minimum. It is gratifying to know that in regard to all these the percentage of error is considerably less than in the previous year, which we may take as a sign that more care is taken by practitioners and that the provisions for instruction which the cases in the hospitals of the Board afford are appreciated by students. The improvement in the diagnosis of enteric fever is very marked. The great safeguard against error in this disease is not to be in too great a hurry in coming to a diagnosis. A variety of symptoms must be taken into account before other diseases can be excluded.

TUBERCULOSIS IN A FRENCH NAVAL ARSENAL.

DR. AUFFRET, principal medical officer of the Maritime Arsenal at Brest, does not believe implicitly in statistics, because "the elements from which they are compiled are so seldom gathered under identical conditions." To be of use statistics should, he thinks, not only extend over a lengthened period and be pervaded by a single ruling idea, but, above all, it is necessary that throughout the entire series the same directing hand should control the helm. These three essentials are unfortunately rarely united. And when the prophylaxis of a grave affection like tuberculosis is in question something more than probabilities are needed if we would avoid the imparting of a false direction to our reforms and the throwing away of large sums of public money. Notwithstanding his cautious attitude, Dr. Auffret found it impossible to escape concluding from the records at his disposal that, in spite of modern sanitary discoveries and inventions, the mortality from tuberculous affections amongst the *personnel* under his charge instead of decreasing, as might have been expected, has increased steadily during the past 30 years, until at last very nearly 70 per cent. of the total loss from internal disease could be ascribed to it. The number of operatives and clerks employed in the arsenal being close on 8000—a

strength which has not been equalled, or even approached, since 1871, the year of the war with Germany—the matter is one of considerable importance and accordingly Dr. Auffret was led to institute a minute inquiry into the causes of the mortality with a view to suggesting remedies. The results are embodied in a report to the Minister for Marine Affairs, which was submitted last December, and an abstract of the document appears in the *Archives de Médecine Navale* for June where it occupies three-fourths of the entire space. Among the predisposing causes of the disease the writer mentions (*a*) complaisance or carelessness on the part of examining medical officers. When a candidate with incipient tubercle is allowed to pass he at once becomes a centre of infection. The prevalence of the disease is chiefly due to the personal transmission of germs. (*b*) Defective buildings, walls, and floors; (*c*) insufficient and excessive ventilation; (*d*) overcrowding; (*e*) certain occupations; (*f*) climatic vicissitudes. The mortality from tuberculosis invariably attains to its maximum during the two months that follow the period of greatest cold. (*g*) Home influences. A workmen passes more than half of his time out of the reach of official sanitation. (*h*) Improper food. 35 blacksmiths in consideration of their arduous work receive an extra allowance of wine. "Why should this be?" inquires Dr. Auffret. "It is contrary to the teaching of physiology dating back upwards of 50 years. Our neighbours, who are also our rivals, give additional meat when the work is hard in the form of 'rosbeef'—that is to say, of roasted beef." He proposes, therefore, the substitution of grilled meat in lieu of half the wine. In conclusion, Dr. Auffret says: "At Brest the damage caused by tuberculosis every year may be put down as equal to a sum of from 40,000 to 45,000 francs. I propose to utilise this money in pensioning off men the moment they begin to exhibit symptoms of tuberculosis. The elimination of the poison-carrying workman cannot but lead to a diminution in the number of fresh tuberculous cases and consequently to the progressive lessening of the sum to be distributed." In Dr. Auffret it is clear that France has a capable clear-headed official.

CURARE IN TETANUS.

DR. B. SCHARLAN[1] states that curare had never met with general favour in the treatment of tetanus, Billroth in his great work on Surgical Pathology and Therapeutics (1871) remarking that it had been used occasionally but had not fulfilled expectations. The following record, however, of two cases of tetanus and trismus treated by curare with recovery in both is interesting. The first case was as follows. A boy, aged 11 years, was admitted to hospital on August 29th with marked trismus and tetanus lasting two days and following upon a wound in the foot inflicted by a splinter of wood four weeks previously. Two weeks after the wound there was pain in the right shoulder, soon after the entire trunk became rigid, and on the following day the neck and arms became involved. Attacks of trismus and tetanus followed later. There was very marked opisthotonos, the abdomen was rigid and tense, micturition was difficult, the temperature oscillating about 100° F. Treatment commenced with a hypodermic injection of one-twelfth of a grain of curare repeated in increasing doses as often as the physiological symptoms of a dose faded away. When a dose of one quarter of a grain was reached the opisthotonos disappeared and the patient was able to open the mouth sufficiently to separate the teeth and drink. To secure sleep at night chloral hydrate was given in the evening. The injections of one quarter of a grain of curare were repeated at first every six or eight hours, but after six days of such treatment the effect became more lasting and only two injections were required in the 24 hours. From Sept. 12th one injection daily was given until Sept. 20th, when it was discontinued. He was after this given a warm bath of 30 minutes' duration every morning. He improved, and on Oct. 5th he was discharged as cured. The second case was that of a boy, aged seven years, with tetanus and trismus, admitted to hospital on Oct. 31st. There was extreme opisthotonos, the superficial and deep reflexes were exaggerated, the temperature was 101·4°, the pulse was 132, and the respirations were 42. The pure alkaloid curarin was given, the dose being one-fiftieth of a grain hypodermically. About 30 minutes after the injection the mouth was somewhat opened and the arms became lax, but the legs remained as rigid as before. Five grains of chloral hydrate were given nightly. The injections of curarin were continued on the same principle as in the previous case. The patient continued to improve day by day. On Nov. 5th he slept six hours during the night, the muscles being quite relaxed. The next day he sat up in bed for the first time. Eventually the stiffness of the jaws and legs entirely passed away and he was discharged cured. In a third case, where the patient was a man, aged 25 years, the same good resulted from treatment by curare. It appeared that with every day the patients lived the prognosis became better, the tetanus poison gradually losing its strength. If no natural sleep set in a hypnotic (chloral hydrate) was given at night. Nourishment (liquid) was administered, and if the sixth day of the outbreak had passed a hopeful prognosis could be entertained.

[1] Jacobi's Festschrift, 1900.

THE METROPOLITAN WATER-SUPPLY.

THE interest of the monthly report of the water examiner to the Local Government Board is somewhat impaired by the fact that it is always a belated document (for example, the report for the month of June was published in August) and because the greater part of the information supplied is given by the metropolitan water companies. This arrangement, it is to be hoped, will be soon altered, but until the water examiner has facilities for furnishing a perfectly independent report all that can be done is to learn what we can from the available information. It is of interest to note that the average amount of water supplied per head per day was less in the case of each company during the month of June, 1900, than it was during the corresponding month of last year. The greatest reduction in the amount supplied obtained in the case of the Lambeth Company which effected a "saving" of nearly four and a half gallons per individual per day. The report shows that the companies have not yet generally carried out their statutory duties to give a constant water service to all their customers. The Chelsea Company and the Grand Junction Company, however, both profess to give a constant supply to the whole of their districts. In the case of the Lambeth Company three-quarters only of their supplies are constantly given. It would be interesting to know what steps the company are taking to carry out their duties in this respect and an inquiry by the Water Examiner into the matter appears to be indicated. In regard to the quality of the water supplied, Dr. Thorpe, the analyst to the Local Government Board, reported that the Lambeth Company and the Southwark and Vauxhall Company contained the highest proportion of organic carbon and that the water supplied by the Lambeth Company exhibited the "deepest average tint of brown." Improvements have lately been made, we may remark, in the arrangements of the Southwark and Vauxhall Company, but the Battersea filtering station is still in use and both the reservoir capacity and the filtration area of the company are below the standard of the West Middlesex Company, which is by no means too high. In the case of the Lambeth Company the reservoir capacity, judged by the same standard, is less

than one-third of what it should be. In these circumstances the "tint of brown" in the water supplied by the Lambeth Company is not a matter of surprise. The month of June was fine and the state of the untreated Thames water was good throughout. We may, perhaps, with advantage call the special attention of Dr. Thorpe to the state of the water supplied by the Lambeth Company during the periods when the Thames is in flood, to the water pumped from the Battersea station of the Southwark and Vauxhall Company, and to the water filtered at the Thames station of the East London Company. At present the analyses made by Dr. Thorpe are by no means numerous if we may judge from his report of July 6th. The examination of one specimen of the water of each company is hardly sufficient, for the quality of the water, for reasons which we need not specify, is likely to vary from day to day.

A PRELIMINARY INVESTIGATION INTO THE PREVALENCE OF THE ANOPHELES MOSQUITO AND MALARIA IN CALCUTTA.

THE report of the health officer of Calcutta for 1899 contains, in addition to the record of facts and figures which are commonly forthcoming in official documents of the same character, some interesting information as to what is being done in Calcutta in regard to the part played by the mosquito in the transmission of malaria. Being convinced that mosquitoes of the anopheles type form a link in the transmission of malaria from man to man, although the exact nature of the connexion may not yet be fully understood, the health officer, Mr. J. N. Cook, thought that the time had come for seeing whether any reduction could be made in the fever returns of Calcutta by giving some practical effect to what have hitherto been more or less theoretical considerations. For that purpose he applied for and obtained permission to engage the services of natives who had been trained under Major Ronald Ross, I.M.S., to hunt for anopheles mosquitoes for the prosecution of his scientific work whilst in Calcutta. The object was to discover the places where these mosquitoes bred within the area of the municipality and if possible to kill them in the larval or pupal stage of their existence. The stipend granted to the natives (two of whom were in reality employed in the work) was too small and the time has been too short to allow of much being done; still what has been effected is interesting and instructive. The first thing, of course, was to ascertain the breeding grounds of the anopheles mosquito and this was done. The method pursued was simple and business-like. The natives hunted out and brought the specimens and indicated the places where they were obtained. Their observations were verified by the health officer and others who marked off the exact sites on a map. There were 89 such places discovered in the course of three months and the report furnishes a list of them. Most of them were tanks, but not large well-made tanks containing fairly clean water—for in such the anopheles larva are not found—but small ones containing dirty water and some low forms of vegetation corresponding to the duck-ponds of English villages. There is some reason to believe, by the way, that fish and tadpoles feed on the anopheles larva and reduce their numbers. The anopheles frequents the leeward rather than the windward side of a tank as a rule. The most favourable breeding grounds appear to be shallow ground excavations containing but little water. Some experiments were tried for the extermination of anopheles larva. It was found that they could be quickly killed in pools with kerosine oil, but reappeared again in about a week, so if they were confined to small pools and the breeding-places were not too numerous their extermination would not be a very difficult matter. Most of them could be killed off by kerosining the pools every few days, and the pools could be filled up or drained. The tanks, however, present much greater difficulties, as it is difficult to cover the surface of even a small tank that contains much vegetation with kerosine. Experiments in this direction were by no means a success. Much good would probably be effected by filling up or improving the foul tanks in which anopheles breed. It is doubtful whether tanks of the better class contain enough pabulum for their sustenance, for it must be remembered that the male mosquito is not a blood-sucker and has to obtain sufficient sustenance in the larval state to last him his lifetime. Another important point is that mosquitoes do not generally travel far from their breeding-places but remain under shelter when the wind is strong, so that once exterminated in any locality it is doubtful whether other mosquitoes would come in from outside to any extent. The observations and experiments may be so far regarded as only a preliminary investigation into the prevalence of anopheles, but they are of great medical and public interest.

HOSPITALS AND LOCAL RATES.

IN our issue of March 10th (p. 715) we referred in our leading columns to the deputation which was received by the President of the Local Government Board concerning the exemption of hospitals and infirmaries from local rates. On May 22nd a select committee of the House of Commons was appointed to consider the matter and its report has just been issued as a Blue Book. We are glad to see that the committee consider that hospitals do relieve the rates and that institutions which minister to the sick poor have claims to exemption from rates at least equal to those which may be urged in favour of any foundation already exempt. The committee recommend that the principle of exemption from rates should be applied to all medical hospitals, infirmaries, or other institutions for the care and treatment of persons suffering from sickness or injury, or afflicted in mind or body, not carried on for profit or gain, and supported wholly or in part by voluntary contributions or endowments, and directly benefiting the rates in the county or district in which they are located to a greater extent than they pay rates. And they further recommend that any Bill introduced to give effect to this principle should confer power upon the rating authorities to deal with the question either wholly or in part, and that where the rating authority does not act under this provision such institutions may appeal to the county council, or such body as is the central rating authority, and that these bodies shall exempt such hospitals or hospital from rates, provided that they come within the above-named definition. We trust that the next session of Parliament may see legislation in accordance with the recommendations of the select committee.

EPILEPTIC COLONY FOR CHESHIRE.

THE Lewis trustees are to be congratulated on the choice of an object on which to bestow some of the funds at their disposal. They have recently, we understand, purchased an estate near Warford, and here it is proposed to erect extensive buildings for the employment and treatment of epileptics. We do not yet know the particulars of the scheme, but we have no doubt that the trustees will have obtained all the most modern knowledge as to the best method of dealing industrially and medically with large numbers of epileptics. In this country we have much to learn from other nations, especially Germany and America, on this question, and the trustees, we doubt not, will avail themselves of the best continental experience. There is little doubt that there are in every large town a considerable number of epileptics both able and willing to work who

by their unfortunate infirmity are precluded from earning a living, and if these men and women can be reached and transformed into useful citizens a great work will have been accomplished. One thing the projectors of such an undertaking must understand—viz., that the institution should have a considerable endowment. Whatever it may accomplish in the course of years an industrial colony of the character apparently contemplated cannot in its early days be self-supporting. We cordially wish the initiators of this most promising scheme, who are at the same time the donors of the munificent gift, the greatest success in their generous and philanthropic enterprise.

THE CONCILIATION BOARD.

AT the conference held at Manchester upon Medical Organisation at the beginning of May Dr. J. G. Glover announced that a meeting was about to be held between a committee of the British Medical Association and the committee of the General Medical Council (of which he, the speaker, was chairman) with reference to a conciliation board. The British Medical Association appointed a conciliation board, but the said board has not lasted long, for the council of the Association has just resolved "that the conciliation board be not re-appointed." The subject does not seem even to have been referred to the Association itself, the resolution being the work of the council. Either the General Medical Council must have been wrong in devoting so much time to the proposal or the council of the British Medical Association in devoting so little. Time will perhaps show where the fault lies.

CONDITIONS PRODUCED BY THE BACILLUS AEROGENES CAPSULATUS.

THE *Boston Medical and Surgical Journal* of July 26th contains an important paper by Dr. Welch of the Johns Hopkins University on the pathogenetic rôle of the "bacillus aerogenes capsulatus," an organism first described by him in 1891. Dr. Welch has collected 46 cases of emphysematous gangrene in which the bacillus aerogenes capsulatus was found.[1] In the great majority of cases the bacillus was evidently introduced through a wound from without. Those injuries in which there was much laceration and crushing of tissue, comminution of bone, and grinding of dirt or foreign bodies into the tissues, such as compound fractures and bullet wounds, were the most likely to be followed by emphysematous gangrene. Severe traumatism, however, was not essential. In five cases the gangrene followed hypodermic injection and infusion of saline solutions. We have recently referred to cases of gaseous abscesses following hypodermic injections described at the Société Médicale des Hôpitaux of Paris and attributed to an organism termed by Veillon and Zuber the "bacillus perfringens."[2] This bacillus Dr. Welch believes to be identical with the one described by him. In three of Dr. Welch's collected cases (one of removal of the appendix vermiformis, one of strangulated hernia, and one of rupture of the rectum) the infection came from the intestine. The prognosis of emphysematous gangrene is now more favourable than in the pre-antiseptic period; in Dr. Welch's series the mortality was 59 per cent. But when the disease is accessible to surgical treatment, is not complicated by other grave conditions, and is promptly treated the prognosis is not unfavourable. Prophylaxis is obvious. The cases were treated by free incisions, by amputation, or by both. The results were better after amputations than after incisions. In certain uterine infections the gas bacillus has been found, and the occurrence of emphysema in the dead fœtus has been known for centuries. In 1897 Dobbin published a paper in the Bulletin of the Johns Hopkins Hospital on Puerperal Sepsis due to Infection with the Bacillus Aerogenes Capsulatus. During the life of the patient, gas and the gas bacillus were recognised in the fœtus, placenta, and cavity of the uterus; and after death there was general gas formation throughout the body. In another case in which the patient made a good recovery without sepsis, crepitation of the caput succedaneum was recognised while the fœtus was in utero. The bacillus is the chief cause of physometra, which was present in Dobbin's first case and is often associated with emphysema of the dead fœtus, but which may occur without it, and even in the non-pregnant uterus. Emphysema of the uterine wall is another and far graver result. Physometra is a necessary accompaniment unless the cervical canal is open and permits escape of the gas. The urinary tract may be not only a portal of entry of the gas bacillus into the circulation but also the seat of infection. In a case of urethral stricture with cystitis treated by perineal section gas bacilli were found three-quarters of an hour after death in large numbers in the bladder, ureters, and renal pelves, and a few bubbles and bacilli were present in the blood of the right ventricle. Gas may be found free in the bladder, ureter, or renal pelvis. The intestine is the commonest source of the gas bacillus, and invasion from it may result in the production of gas in the peritoneal cavity. Submucous and subserous gas cysts may also be formed. In the pleura the bacillus may give rise to pneumothorax without perforation.

[1] THE LANCET, July 21st, 1900, p. 205.
[2] THE LANCET, April 7th, 1900, p. 1021.

HOUSING OF THE WORKING CLASSES ACT, 1900.

THE Local Government Board has issued a digest of the provisions of the several parts of the Housing of the Working Classes Act, 1890, as amended by that somewhat meagre piece of legislation, the Housing of the Working Classes Act, 1900. The principal alterations effected by the latter are in respect of procedures under Part III. of the Act of 1890. This is the part which enables urban sanitary authorities with the sanction of the Local Government Board, and rural authorities with that of the county council, to purchase land and erect, or contract for the erection thereon, of "lodging-houses for the working-classes"—a phrase which includes "separate houses or cottages for the working-classes, whether containing one or several tenements." Part III. does not in any case come into force in a district until it has been adopted by the sanitary authority. The Act of 1900 makes adoption easier in rural districts by doing away with several of the obstacles created by the Act of 1890; moreover, in certain contingencies the county council will now have power themselves to adopt and enforce Part III. in any rural district in the county if they are satisfied that the district council concerned has been in default in "properly exercising their power of adopting and acting under" this part of the 1890 Act. In the event of land being purchased compulsorily, and in default of agreement, compensation is now to be settled by a single arbitrator appointed by the Local Government Board. Also it is made possible for district councils to lease land purchased by them under Part III. for the purpose of erection of working-class dwellings by private enterprise, subject to certain conditions being complied with. The new Act, it will be remembered, has now made it practicable for an urban authority to establish or acquire lodging-houses for the working-classes outside its district—a provision of great importance in the case of large towns. Whether these amendments will lead to more general use by sanitary authorities of their powers to provide working-class dwellings remains to be seen. At present no rural and very few urban districts have done anything in this direction. Lord Shaftesbury, some years after

he had been instrumental in obtaining three separate Acts relating to housing of the working classes, expressed in 1884 the opinion that there was no man living besides himself who knew of their existence. Now, however, public opinion is becoming more and more interested in the matter and there are many who, with some show of reason, regard existing legislation as giving inadequate opportunities of reform. But whether or not this is so cannot, after all, be satisfactorily determined until public health authorities in considerable number, both in urban and rural communities, have made serious effort to avail themselves of the considerable machinery which is at present at their command.

GLASS IN THE STREETS.

THERE is one dangerous nuisance, specially annoying to cyclists but not without its serious aspects for other people and for animals, which should if possible be put a stop to—namely, the throwing of broken glass into the roadway. The quantity thrown out into the streets of our large cities is enormous. At a recent meeting of Manchester Cleansing Superintendents, Mr. Hamblett, of the Salford Cleansing Department, said that last year 97 tons of broken glass were taken from the refuse destructors and 224,742 unbroken bottles of various kinds. The *Manchester City News* estimates that the broken glass represents 650,000 bottles, worth about £3000 retail, and that the whole bottles would be worth another £1000. Children are said to be the chief offenders, but as shopkeepers and publicans generally require the deposit of 1*d*. per bottle the loss falls on the parents. The parents should, of course, teach their children better, but as the responsibility for their education and bringing up nowadays sits lightly on them perhaps the schools—board or voluntary—might come down occasionally from the "higher grades" to give some really useful lessons bearing on conduct. The same paper says that if the Salford average holds good for Manchester the bottle tax will be £10,000 a year and the glass would equal 2,200,000 bottles. Much broken glass gets carried with manure into gardens and fields, to the injury sometimes of the workers. What should be done with waste glass is a question, but if glass-works cannot re-melt it at a profit it might be sufficiently fused in the destructors to be rendered harmless and used in road-making.

ACUTE POISONING BY TRIONAL.

DR. WARREN COLEMAN of New York records in the *Medical News* of July 28th, 1900, a rare and interesting case of acute poisoning by trional. The symptoms of poisoning by this drug have been said to consist of vertigo, loss of equilibration, ataxia, nausea and vomiting, diarrhœa, stertorous breathing and cyanosis, tinnitus aurium, hallucinations, and hæmatoporphyrinuria. The case recorded by Dr. Coleman is that of a woman, aged 35 years, who was suffering from a mild delirium brought on by an excessive indulgence in champagne and alcoholic drinks for several days. Six trional powders (of 15 grains each) were ordered to be taken, one every half hour for two hours. The patient became drowsy and sleepy and on the third day it was found difficult to rouse her. There were no disturbances of respiration or circulation to be detected by ordinary clinical examination. In answer to questions she replied that she was "dizzy and sleepy." Her speech was thick and she walked with difficulty, the gait being ataxic. She showed no sensory disturbances and the urine was free from hæmatoporphyrin. Upon inquiry it appeared that she had taken trional far in excess of the prescription and to the extent of nine drachms (540 grains) in 72 hours, the original prescription having been repeatedly made up at the stores. The patient was ordered a saline purge and she gradually recovered from her state of trional intoxication. The above case shows that trional is free from excessive depressing effects even when taken in maximal medicinal doses, and that even when by accident enormous doses are taken the result need not be necessarily fatal. The development of hæmatoporphyrinuria should always be looked upon as a danger-signal in cases of administration of trional or sulphonal, and the use of the drug should be discontinued until this symptom has passed away. Attention may be here recalled to a case of the sulphonal habit ending fatally which was recently recorded in these columns.[1]

THE MEDICAL STAFF AND THE MANAGEMENT OF THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.

WE publish in another column a correspondence between Sir James Crichton-Browne and Mr. B. Burford Rawlings, which sheds an interesting side-light upon the proceedings at the extraordinary general meeting of the governors and subscribers of the National Hospital for Paralysis and Epilepsy held on August 11th last. It appears that the extraordinary meeting was packed to this extent, that friends of the board of management received special notice of it which was not extended to friends of the medical staff. Can the people who thus divide the supporters of the hospital into two sharply defined classes be called friends of the hospital as a whole?

SUBPHRENIC ABSCESS FOLLOWING APPENDICITIS.

IN the August number of the *Cleveland Journal of Medicine* Dr. J. F. Baldwin records two cases of subphrenic abscess following appendicitis. The first patient was a woman, 49 years of age, who suffered from appendicitis at intervals from 1894 to the end of 1898. In March, 1899, she complained of great pain and tenderness in the region of the appendix and along the ascending colon, with enlargement and tenderness of the liver, this enlargement being distinctly downwards. She lost considerable flesh and had constant elevation of temperature and pulse. On June 6th a greatly elongated and catarrhal appendix was removed. The right lobe of the liver could be easily palpated and was much enlarged; the enlargement seemed symmetrical and smooth, but owing to the patient's stoutness a thorough examination was not possible. Convalescence was satisfactory, but a little elevation of temperature persisted which could not be accounted for and the former pain and soreness recurred above the situation of the appendix. The liver was apparently greatly enlarged. There were no chills or sweats. On July 20th a chronic abscess was found pointing on the right side at about the tip of the twelfth rib, and when opened just below the twelfth rib it gave exit to an enormous amount of pus, leaving between the liver and the diaphragm a cavity the limits of which were beyond the reach of the fingers and which closed in about six weeks. The second patient was a female, aged 16 years, from whom a gangrenous and perforated appendix was removed on July 26th, 1899. A good recovery was made as regarded the operation, but from about August 10th she continued to have irregular fever, with rapid pulse and profuse perspirations. The liver became depressed below its proper position so that the lower border was some three fingers' breadth below the ribs. On August 28th an incision was made just below the border of the ribs and parallel with them. The liver was normal and a collection of pus of the size of a small orange was found between it and the

[1] THE LANCET, July 28th, 1900, p. 269.

diaphragm. Convalescence was prompt, the abscess and wound healing thoroughly in about two weeks. Dr. Baldwin has only been able to find records of 43 cases previous to his own, many of them having remained unrecognised until the necropsy. He says that the diagnosis must be based upon the continuance of the symptoms of infection after the removal of the appendix or after the subsidence of the inflammatory symptoms in the region of the appendix. There will also be some tenderness in the region of the liver, with a depression of its lower border owing to the accumulation of pus and exudate between its upper surface and the diaphragm. He recommends an infracostal incision made rather well back on the right side.

LUNACY IN VICTORIA.

IN his annual report for 1899 Mr. J. V. McCreery, inspector of lunatic asylums in the colony of Victoria, states that the total number on the books of the asylums on Dec. 31st, 1899, was 4398, as against 4394 on Dec. 31st, 1898. The distribution of patients in the public lunatic asylums was as follows:—At Yarra Bend, 774; at Kew, 954; in the Kew Idiot Asylum, 231; at Ararat, 700; at Beechworth, 653; at Sunbury, 682; at Ballarat, 256; the remaining cases were either out on probation or boarded out. On page 13 of the report it is stated that the admissions during the year numbered 785 persons, 426 being males and 359 being females. This was the highest yearly number recorded since the asylums were opened. The general population of the colony at the end of the year was estimated at 1,180,878, and on this basis the ratio of the insane admitted during the year to the whole population would be 1 in 1504. In Victoria there was one lunatic in every 268 persons. Mr. McCreery considers that "there is strong reason to believe that a lesser percentage of our (i.e. the Victorian) population become insane now than 30 years ago." The patients discharged recovered were 352 in number, showing a percentage of recoveries of 44·44. The number of deaths was 348, the percentage of deaths on the average number resident being 8·27. The net weekly cost was 8*s.* 4*d.* Private asylums are not permitted in Victoria and Mr. McCreery recommends that the Lunacy Department should improve the existing accommodation for paying patients.

HYSTERIA IN BOYS AND YOUTHS.

UNDER the above heading Dr. Arthur Hall of Sheffield gives in the August number of the *Quarterly Medical Journal* records of eight rather unusual cases, all of which had been diagnosed at some period or other as examples of organic nervous disease. One case was that of a boy, aged nine years, who walked with a staggering gait not unlike that of cerebellar disease. He could sit up in bed unsupported, but when he held his hands straight out in front of him there were some jerky movements as well as similar ones of the head and tongue. His walk was peculiar: when once set going he could walk in a fairly straight line, but directly he attempted to come to a standstill he reeled backwards with an inclination to one or the other side indiscriminately. He kept up this condition with great consistency until one day he was tired out and for a few moments he stood quite still. After this he staggered for some time badly, but a complete cure was effected by setting the magnetic interrupter of a faradaic battery in motion and warning him that it might have to be applied. Another case was also that of a boy, aged nine years, who was said to suffer from headache, squint, and diplopia. He alleged that he saw double anywhere within two feet of him, but not beyond that. Dr. Hall could not find any strabismus and had reason to doubt the diplopia, as although the boy saw two fingers when one was held up, yet when two were shown to him he said that he saw three. The symptoms all disappeared under treatment. Another case was that of a labourer, 21 years of age, whose symptoms simulated Jacksonian epilepsy. He had a somewhat unsteady gait and difficulty in coördinating his movements. While being questioned he complained of an attack of headache, then was suddenly seized with twitchings of the left arm and to a less extent of the left leg. He then gradually lost consciousness; his mouth and face also twitched. When he was examined in bed a large rounded pulsating swelling was felt on the left side of the head, under which the bone was absent, evidently a bulging of the cerebral membranes through an old trephine hole. After a few days Dr. Hall felt sure that the patient was shamming. The correctness of this view was proved by the patient on hearing it said that his case was one for an asylum or the police, recovering quickly and taking his discharge next day.

THE SCHEDULING OF CARBOLIC ACID.

CARBOLIC acid is now a poison within the meaning of the Pharmacy Act, and in accordance with the provisions of the Privy Council Order it can only be sold by retail by registered persons. The vessel containing liquid preparations of carbolic acid above a minimum strength must now be distinctly labeled with the name of the article, with the word "poison," and with the name and address of the seller. The Order came into operation on Sept. 1st and the resolution of the council of the Pharmaceutical Society, in which carbolic acid was declared to be a poison within the meaning of the Pharmacy Act, 1868, was approved by the Privy Council on July 26th, 1900. There has, therefore, been some expedition exercised in getting this Order made law; and we are glad that this is so, considering the great number of lives that have been purposely as well as accidentally lost through the indiscriminate way in which the poison was hitherto sold in unrestricted quantity to the public. But the wording of the Order needs amendment. It states that "liquid preparations of carbolic acid and its homologues containing more than 3 per cent. of those substances" shall be deemed poison within the meaning of the Pharmacy Act, 1868, in accordance with the second part of Schedule A. Round the exact meaning of the word "homologues" much discussion is certain to turn, and, moreover, there are homologues of phenol which are non-poisonous. If we are not mistaken the word "homologues" will sooner or later have to be removed from the Order, and the precise substances which it is intended that the new Act shall include exactly specified.

EPILEPTIFORM CEREBRAL DISTURBANCES ACCOMPANYING CONVALESCENCE FROM TYPHOID FEVER.

EPILEPTIFORM attacks during convalescence from typhoid and other acute fevers are decidedly uncommon. Professor F. Muhling of the German Hospital in Constantinople records in the *Münchener Medicinische Wochenschrift*, No. 7, 1900, an interesting phenomenon following typhoid fever in a patient, 23 years of age, a man of strong constitution, of good previous health, and with a good family history. In November, 1898, he became ill with typhoid fever, in the course of which he slept much and suffered from delirium at night. In the first week of the illness there was a sudden and marked fall of temperature the cause of which was not known. He gradually convalesced from the fever and on the twelfth day of convalescence, while in bed, he developed an epileptiform attack. The fingers of the left hand exhibited clonic spasms which then affected the left

eyelid and became generalised. The spasms lasted half an hour, during which time the pupils were widely dilated and did not react to light. After an interval of three hours there was a second attack which lasted 20 minutes, and five hours later there was a third attack lasting ten minutes. Both of these attacks had a course like the first. Six hours later a fourth and final attack supervened and this continued —with short intermissions lasting each from one to five minutes—for an hour. The patient was conscious and felt well between the epileptiform attacks, but after the last attack he suffered from symptoms of numbness and formication in the two outer fingers of the left hand. The urine was normal and there was no cardiac abnormality. The patient was put on bromides and made an uneventful recovery after this. The exact cause of the cerebral disturbances could not be traced, the question whether they were due to a small embolus or other cause of acute local cerebral anæmia being left open.

THE PRESIDENTIAL ADDRESS AT THE BRITISH ASSOCIATION.

THE meetings of the British Association are a carnival of science. That is to say, we think that it may be taken without contradiction that the festival and the social side of science are more in evidence than the real work and toil of it. Excursions with an archæological or architectural substratum are much favoured, and were it not for these the meetings would probably be sparsely attended. This being so Sir William Turner is to be congratulated on the success of his bold attempt to lay before an audience composed in great part of men and women who take an intelligent interest in science without knowing very much about it an account of the processes of biology. But we fear that to many his account of the cell and its life, of karyokinesis and of cell cleavage, clearly expressed as it was, must have been somewhat unintelligible. Those who have watched the actual processes under the microscope will recognise how simply and plainly Sir William Turner, a master of his subject, has formulated the stages of karyokinesis; but to the average scientifically minded layman the terminology will seem as obscure as, for instance, an account of a bull fight with its references to the various feints and passes of the chulos and the matador is to the non-expert. We hope we do not wrong Sir William Turner's audience in believing him to have been above the heads of many of them. But if their technical knowledge enabled them to follow him we are sure that they must have been profoundly interested, for the study of the life processes in the cell is one of absorbing interest as a step on the journey towards that knowledge which at present seems unknowable. The evolution of the human race is perhaps the greatest problem with which we have to grapple and Sir William Turner well said: "Though from the nature of things the order of descent is, and without doubt will continue to be, ever a matter of speculation and not of demonstration, the study of the subject has been a valuable intellectual exercise and a powerful stimulant to research." When we consider how little we know we need not be downcast, for we can consider at the same time what enormous advances have been made in our exact knowledge even in the present century.

THE ETIOLOGY OF "CANCER."

OF recent years many attempts have been made to discover the true cause of malignant growths, and one of the most valuable of these investigations was carried out by a committee appointed by the Birmingham and Midland Counties Branch of the British Medical Association. The committee was appointed in March, 1898, and their report was published in the *Birmingham Medical Review* in May, June, and July of this year. The investigation was limited to the counties of Warwick, Stafford, Salop, and Worcester, but it was found impracticable to obtain information with regard to every registration area. The committee drew up a circular mentioning the points on which information was desired and a schedule for tabulating the cases. The circular asked that the percentage of deaths from malignant disease in the whole district, and in each of the parishes comprised in it, might be ascertained, and that an accurate description should be given of the physical conditions of the districts where malignant disease appeared to be most prevalent. It was further requested that special attention should be paid to the situation and surroundings of any house or row of houses where malignant disease had occurred with marked frequency. Returns were obtained from more than 50 registration areas, with a population of more than 860,000, and 5300 cases of malignant disease were tabulated. The report deals at great length with the returns from every district, and these are of much value, but most interest will be felt in the conclusions at which the committee have arrived. The first point established by the returns is that there are certain areas in which the mortality from malignant disease is noticeably above, and others in which it is markedly below, 0·58 per 1000 per annum, the average for England and Wales. For instance, in the Shipston-on-Stour sub-district every parish except one has a mortality from "cancer" of over 1·15, while in the Foleshill registration area nearly every parish has a mortality from this cause below 0·47. The physical conditions which are found where "cancer" prevails are contamination of the soil with sewage and a general lack of drainage. There seems to be no definite connexion between the geological characters of the subsoil and the prevalence of "cancer." Evidence is also adduced that there is a special tendency to the occurrence of malignant disease in certain houses or groups of houses, and on the whole "cancer" is more common in old than in new houses and districts. The investigation has certainly accomplished all that could have been expected from it.

CONSTIPATION FROM ATONY AS A FATAL DISEASE.

CONSTIPATION is one of the commonest ailments of civilised life and its relative frequency among people otherwise healthy leads us to regard it not so much as a disease but as the natural result of artificial conditions acting upon a healthy body. It may be due to either sluggishness of the peristaltic action of the intestines or to increased resistance to expulsion offered by the fæcal matters owing to hardness and dryness of fæcal masses. Mr. Robert Brummitt records a case of constipation as a fatal disease *per se* in the *Australasian Medical Gazette* for March, 1900. The story is very instructive and almost unique. The patient was a boy who since his birth in 1884 had suffered from chronic sluggishness of the bowels with constipation. Careful examination of the abdomen and of the rectum showed nothing abnormal save a few external hæmorrhoids. Every therapeutic means had been tried—unsuccessfully—to relieve his trouble. Laxatives and aperients, intestinal and general tonics, regulation of diet, massage, enemata of various kinds and irrigation, and faradaic electricity had been employed, but to no purpose. The relief occasionally obtained by a partial evacuation of the bowels aided by one of the above therapeutic means was only temporary. He continued to grow ill and to lose flesh, and eventually died in an emaciated condition at the age of 16 years, the immediate cause of death being peritonitis, his weight being only 60 lb. At the post-mortem examination it was found that the cæcum and the ascending and transverse colon were full of scybalous masses, which were

so hard that they could not be indented with the finger. Careful examination failed to disclose any constriction or obstruction in any part of the intestinal tract or any abnormality in its attachments to the abdominal and pelvic walls. "In the absence of marked organic lesions," says Mr. Brummitt, "I suppose this boy had congenital weakness of the intestinal walls probably due to defective innervation. This may have possibly conduced to abnormal dryness of fæces. He certainly had during the last few weeks fæcal obstruction and during the last few days peritonitis." If the causation was defective innervation of the intestinal walls, with consequent muscular atony, the various therapeutic means employed could give only temporary relief.

RECOVERY in a case of true generalised septic peritonitis is exceedingly rare. It is almost impossible to imagine that it ever occurs without treatment by an operation, and even when a laparotomy has been performed it can hardly be thought that it is possible by any amount of sponging or flushing to disinfect so large and irregular a cavity as the peritoneum. Yet cases are recorded. We publish one this week, which was under Mr. H. A. Duffett's care, in which practically the whole peritoneum was affected, and yet flushing was followed by recovery. A possible explanation of the successful issue in some at least of these cases is to be found in the variety of septic organism present; if this should be one of the less virulent forms the peritoneum is capable of dealing with it provided that the germ is not present in overwhelming numbers. Mr. Duffett is to be congratulated on his result.

A TELEGRAM from Earl Beauchamp, the Governor of New South Wales, to Mr. Chamberlain, received at the Colonial Office on August 29th, says, "I have to transmit subjoined bulletin of the incidence of the bubonic plague at Sydney up to August 25th, 1900—namely, remaining for treatment August 18th, seven; admitted during the week, none; discharged recovered during the week, four; died during the week, none; remaining for treatment, August 25th, three; total cases, 303; total deaths, 103; total discharged recovered, 197; total contacts isolated, 1707; total contacts remaining, none; total cases among contacts, seven; total Chinese attacked, ten; total deaths among Chinese patients, eight."

A REUTER'S telegram from Buenos Ayres on Sept. 3rd states that a case of plague has been notified there.

THE WAR IN SOUTH AFRICA.

GREAT, and on the whole successful, progress has been made since we last wrote about the war in South Africa and the military situation has greatly improved. Officially speaking the war is ostensibly over, notwithstanding that the Boers may retreat to the hills and fastnesses of the Lydenburg district and give us much trouble by maintaining a mountain or guerilla warfare. So long as the Transvaal Government were able to pay for the munitions of war and the Boers had control of the railway from Machadodorp to Koomati Poort it would have been impossible to stop them from obtaining supplies, but the continuance of the war all depends now upon the quantities of these they have stored up. General Buller's division has been vigorously pressing in their pursuit, and he is at the time we write close to Lydenburg. The columns and divisions under the command of the other generals are also making a concerted movement and converging in pursuit of a definite strategical object. It has to be borne in mind, however, that General Buller appears to be in front of an almost impregnable position in the Lydenburg district at the present time and that the garrison of Ladybrand has been relieved only just in time. The general tenour of Lord Roberts's latest despatches would imply that much still remains to be done and that an army of occupation may expect to have a good deal of trying work before it.

The fever season in the low-lying malarious districts about Lydenburg will soon be setting in and much sickness from malarious fever may be expected to follow the occupation of the bush veldt hereabouts by the Boers; or by the British troops, on the other hand, if they have to invade and attack them there. The country and the nature of the fever may be said to resemble very closely those met with in the Peshawar valley at the same season. The facts of the Boers having released their British prisoners and having exhausted their Mauser ammunition show that they are hard pressed for food and munitions of war. The redoubtable De Wet is still at large. Our future difficulty will mainly be the old difficulty—namely, an insufficient supply of horses, for the maintenance of mounted troops will be necessary to counteract raids and capture the raiders. For the rest, Lord Roberts's proclamation of the annexation of the Transvaal by bringing home to the Boers and burghers that they will henceforth be regarded and treated as rebels may be expected to convince them that they have everything to lose and nothing to gain by further resistance.

So far for our prospects as regards the military and medical position. As for the political situation, we think it must be patent to all that the policy of the present Government in respect of this war has been greatly strengthened by the publication of the private and confidential correspondence captured at Pretoria. Mr. Chamberlain could have desired nothing better in order to justify and indicate his position in regard to this rebellion (for rebellion it was) of the Republican States in South Africa than the publication of these documents. The letters of Sir Henry de Villiers, who is by birth, family connexions, and association an Afrikander, which were written before the war, and those of Mr. Merriman, a political partisan of the Dutch, are strongly condemnatory of the course and policy pursued by President Kruger and President Steyn, while warning them at the same time as to what the consequences must inevitably be. To all those who have regarded the war as an unjust one or who had any conscientious misgivings and doubts about the part which this country felt compelled to take in it, a perusal of these letters—written prior to the war by men of character and judgment who were most friendly to the South African Republics—must, we imagine, tend to dissipate any doubts they may have entertained on the subject. Turning, however, to matters coming more strictly within the purview of medical journalists we may say that we have read a great deal in lay papers on the hospitals and the medical administration of the war in South Africa. The statements will be followed by others of an equally voluminous, conflicting, and unsatisfactory character so far as forming any guide to a useful judgment is concerned. The whole matter is, as we know, being investigated by a Royal Commission on the spot. Those who are, after all, in the best position to know the facts and to speak about them are the medical officers, their subordinates, and their patients, together with the headquarter staff and those who have taken part in the campaign. These are prohibited from writing to newspapers; and the large majority of them, at any rate, have not done so. We must, therefore, be content to wait and suspend our judgment until the truth or otherwise of the allegations has been thoroughly investigated—until the grain has been sifted from the chaff. For our own part, we are not only content to wait but are compelled to do so owing to the impossibility, as well as obvious unfairness, of adopting any other course.

Touching the course taken by Mr. Burdett-Cout M.P., we see no reason for altering or modifying the position which we originally assumed. Considering the great gravity of the statements made by him in his initial communication to the *Times*, the deplorable condition under which he described the sick and wounded in our army hospitals to be labouring, and all the anxiety and pain which such statements must inevitably cause to their relatives and friends, we consider that it was his paramount duty to have insisted upon seeing Lord Roberts in the first instance and to have personally represented the facts to him and to those of his immediate staff who either had the power to remedy the alleged evils or to afford them, if that

were impossible, an opportunity of explaining the circumstances and of saying how soon they would be remedied. If Mr. Burdett-Coutts had any practical suggestions to make he should first of all have put them forward in the proper quarters. Moreover, he should, in our opinion, have spared no pains to see whether he could have obtained the requisite aid and any supplies, of which he considered there was such urgent need, from some one or other of the various aid societies in South Africa. We also think that, even if he had made any effort in his power and failed, he might still have forwarded a written statement of the case to Lord Roberts and requested an interview with him or with the Chief of the Staff before having recourse to the press for the publication of his harrowing details. Mr. Burdett-Coutts must, at any rate, have known that a forced march had for very pressing military reasons been made, that the army had altogether outmarched its supplies, and that there was an exceptional strain on the army and the transport when the troops reached Bloemfontein, and he must have been acquainted with all the conditions which had preceded and followed the capture of that place.

It is to be proved how far the calamitous amount of sickness—from enteric fever, for example—should have been foreseen and could have been prevented, and whether, under the circumstances, any better hospital provision could have been made than was made, and if so who was responsible? That is what the Royal Commission have to determine. Even allowing for the sake of argument that there was any amount of negligence and want of foresight on the part of the medical staff, it must be admitted that much of what has appeared in the public press in the shape of correspondence and otherwise in regard to the state of the hospitals and the medical arrangements of the campaign generally is either unfounded, exaggerated, or irrelevant, the evident result of wounded vanity, or founded upon ignorance or ridiculous assumption. Although some of the productions, on the other hand, are written by those well qualified to give an opinion and contain criticisms which are deserving of every consideration, this is far from being the case with many of them. No impartial person, we think, who has read Sir Redvers Buller's emphatic and indignant protest against the accusations which have been brought against the officers of the Royal Army Medical Corps and the hospitals of the British army in Natal can have any doubt on that point. To read some of the letters in the press it would seem as if the members of the Royal Army Medical Corps were not all professionally qualified men, that they had not been educated at universities or medical schools or passed examining boards like the other members of the profession, and afterwards competed for appointment into the army. One person, for example, considers that having himself gone through a six months' course of medicine and surgical dressing in one London hospital, and been a patient for three months in another, he is qualified to give an opinion on the merits (or rather demerits) of those who have spent as many years as he has months in the study of their profession in order to qualify for the practice of it. He passes an unhesitating judgment as to the proper methods to be pursued in certain surgical procedures. His confidence is not so remarkably as the fact that he has got into print. There is no finality about anything in this world and we make no doubt that there is much which army medical officers themselves deem susceptible of improvement in their service, but a good deal of the present criticism is both unjust and unwise. If the Royal Commission can make any practical suggestions and recommendations for its improvement and the increase of its efficiency in war we can answer for it that the medical profession and the army medical service will be only too glad.

SIR REDVERS BULLER AND THE OFFICERS OF THE ROYAL ARMY MEDICAL CORPS.

We have much gratification in calling attention to the emphatic testimony which Sir Redvers Buller has given to the work which the officers of the Royal Army Medical Corps serving under him have performed. It is well known that Sir Redvers Buller enjoys a reputation for out-spoken honesty and for having invariably the courage of his opinions. He has never hesitated to impute blame where he considers it to be deserved, and what lends additional weight and force to his opinion on this occasion is the fact that he was always opposed to having purely military titles conferred upon medical officers, as his letter to THE LANCET at the time this was done made manifest. We leave his trenchant remarks to speak for themselves in the subjoined letter addressed by him to the editor of the *Times*:—

SIR,—The *Times* of the 5th of July contains a letter from Mr. Lees Knowles forwarding extracts from the letter of a correspondent who is stated to desire his name to be private, but who, so long as he cannot be made responsible, has apparently no objection to his letter being used to give pain to others.

It is true that about six months ago the military hospitals in Maritzburg were attacked by a writer in the *Times of Natal*. It is also true that the author of those letters, having been induced to give particulars of his allegations, was confronted before a court of inquiry, presided over by Sir William Stokes, with each patient concerned, when every tangible accusation was proved to be groundless. But this is ancient history; how can stupid assertions discredited months ago "allay the anxiety of some of us who have friends out there"?

At the moment when the attention of England is directed to the hospitals at the Cape, Mr. Lees Knowles publishes, and endorses as the utterance of a person in high position, the following words:—"I am given to understand that the senior officers Royal Army Medical Corps, with few exceptions, are so taken up with their own importance as combatant officers, and their rank as colonels and majors, that they leave much to be desired."

Was ever a more shameful accusation more shamelessly published? There were then but three colonels Royal Army Medical Corps in Natal, outside Ladysmith. Colonel Gallwey, principal medical officer, has procured for the Natal Field Force the most complete hospital system ever provided for an army in the field. He is, I believe, the first P.M.O. who has ever provided nurses in the hospitals receiving wounded on the battlefield. His organising power and untiring energy, with assistance from home, added 4700 improvised beds to our hospital accommodation, and provided nurses, doctors, and attendants, some of them (let Mr. Knowles note) from Johannesburg. Colonel Clery was in charge of No. 4 General Hospital of 520 beds which was expanded into Mooi River Hospital of 920 beds; it was justly referred to by the writer of the articles in the *Times of Natal* as a model of what a hospital should be. Colonel Allin was senior medical officer of the field army and superintended the collection and subsequent removal of the wounded and sick from the front. I believe this duty has been accomplished by him more rapidly and with less discomfort to the sufferers than in any previous campaign.

I could say as much for the next senior officers R.A.M.C., but colonels are mentioned, and I challenge Mr. Lees Knowles and his correspondent of high position to say which colonels they refer to, and either prove their accusations or withdraw their slander.

I have the honour to be, Sir, your obedient servant,

Paardekop, Transvaal, August 4th. REDVERS BULLER, General.

Mr. Lees Knowles has since sent a letter to the *Times* of Sept. 5th in which, after explaining how he came to write the letter to which General Sir Redvers Buller refers, he continues: "Unfortunately, in extracts from my correspondence I included the sentence to which General Buller takes exception, and I wish now to withdraw it and at the same time to express my regret for its publication to those whom it may concern. I do so the more readily, because I am given to understand that it unwittingly casts reflection upon the work of the principal medical officer, whose acquaintance I made in Egypt in 1897–98 and for whose ability I had then, and I have now, the greatest admiration."

THE IMPERIAL YEOMANRY HOSPITAL.

BY ALFRED D. FRIPP, M.S., F.R.C.S.

This is really little more now than a large convalescent camp. It is extraordinary what a tremendous change has come over the place since a fortnight ago when we were still very busy. We have had no death for two whole weeks and we have not taken in an ambulance train-load for three weeks. Very nearly 100 Yeomanry have been admitted during the week, but they are almost without exception convalescents from other hospitals. For instance, all the wounded, consisting of Warwicks, Gloucesters, and Lancashires, from the action nine weeks ago at Kheis have come on here from the Orange River Hospital. Just over 600 officers and men of the Yeomanry have passed through the hospital since it was opened. Of course, a very large number of Yeomanry have been laid up in other hospitals, it having been found impossible from one cause and another to have them sent here. There are many in the acute stages of illness whom it would not be safe to move; others are laid up in parts of the Free State almost inaccessible to proper hospital transport, but the facilities of collecting in this hospital all those Yeomanry who are in a fit condition to travel have been increased daily and the arrangements to that end are now, I believe, as nearly perfect as the complicated conditions permit. There is, for instance, a standing order at De Aar (which is the next station north of us and through which all patients going down country must pass) insuring that every train is warned to stop at Deelfontein and discharge any Yeomanry it may contain. Also, directly we hear that there are any Yeomanry in a hospital up country we telegraph to the commandant of that

hospital and ask him to send them to us as soon as they are fit to travel. But if we are right in supposing that the number of Yeomanry in South Africa is about 10,000 we have already had through our hands not less than 6 per cent. of them—a heavy proportion when it is considered that none of that limb of the service have been out here for more than five months. Out of the 600 already treated here there have been only four deaths, while out of the total number of admissions to the hospital (2575) there have been in all 59 deaths, a mortality of 2½ per cent., which is attributable almost entirely to enteric fever.

Since last week, when I think I mentioned that we had run out of tobacco, a very large quantity has arrived. Much of this has been contributed as presents by kind people at home. I want to take this opportunity of thanking all of our own personal friends who have shown us so much kindness in writing to us and in sending out so many gifts for the use of the patients. One most acceptable present was made by a lady who sent 548 eggs from England. We also owe our hearty thanks for 34 pounds of sweets from Buszard's, and for many pounds of chocolate, dozens of cases of sundry food preparations, and contributions of tobacco and pipes. I only wish the donors could see the immense amount of pleasure that they have given to the patients and also that they could appreciate the encouragement which it gives to the staff to have these perpetual reminders of the kind thoughts of friends at home. Everybody here is struck with the great liberality and thoughtfulness displayed throughout the war towards those who were fortunate enough to be able to come out, by those who, from one cause and another, were prevented from accompanying them. My impression, derived from pretty extensive acquaintance with the hospitals from Cape Town to Kroonstad and Mafeking, is that every hospital to which it has been possible to get the gifts transmitted has, owing to the work of the Red Cross Society and of allied institutions and to the generosity of the numberless private individuals who have contributed in some form or another, found itself abundantly supplied with such comforts and luxuries as tobacco, scent, scented soap, toilet vinegar, periodicals, books, warm underclothing, and knitted articles.

It really seems as if the fighting had nearly come to an end, but we are still anxiously waiting for the news of De Wet's downfall. The general impression out here is that it is only a point of honour which keeps Botha, who presumably is to be considered the commander-in-chief, from throwing up the sponge so long as one of his subordinates is in the field, but everywhere in South Africa one is behind you in England in regard to news. Except when a staff officer comes down to us from some part of the front and tells one the latest "in private" we have to wait for reliable information till the two days' old Cape Town papers reach us and even then the information has frequently been re-cabled from London.

The weather is once again perfectly magnificent and the health of the staff in general has very much improved since the work became lighter. I was very glad indeed to see that Dr. Conan Doyle had been calling attention in the London press to the arduous and dangerous nature of the work done, and done cheerfully, throughout this war by the hospital orderlies. Among all the brave deeds and hard work done by the various branches of the army during the last 10 months I do not believe that any body of men in Her Majesty's service has excelled, even if it has equalled, in bravery and pluck and continuous, even monotonous laboriousness, the behaviour of the thousands of men who have been employed in the hospitals. They have been called upon to do, in addition to a full day's work every day, a full night's work every fourth or third or even at times of stress every second night. Their work has gone on month after month quietly and unostentatiously without any of the glamour attaching to deeds which catch the public eye. Many of them have died at their work but very few indeed have grumbled. The service which they have rendered to their country has, indeed, in the fullest sense of the term, been splendid.

Several people have been asking what is to become of this hospital when the war is over. We have not yet heard that any decision has been arrived at, but, as I told you many weeks ago, my own hope is that it will be taken over as a going concern by the military authorities for the permanent use of the army of occupation, or, failing that, by the civil authorities, in which case it might be worked as a sanatorium with great advantage to the colony if not even to the empire. It is a most perfect site for a large hospital and its establishment is of such a substantial nature that without any but current expenses it could continue its useful work for many years. Every single thing that could be wanted (except, of course, consumable stores), even to the bacteriological laboratory which is essential nowadays to any such large institution, is to be found here in full working order.

We have had several visitors since I wrote last. The police magistrate of the district came with his mounted police for the purpose of raiding our native encampment. We had reason to believe that some natives were lodging there without employment in the hospital which alone gives them the right to remain near our camp. By surrounding the kraal with troops before daylight, and so preventing the escape of anyone, 14 intruders were found. Having arrested them Mr. Boyes proceeded to make a more systematic examination of the contents of each hut than we have ever been able to do, and the result was the recovery for the use of the hospital of a considerable quantity of blankets, china, buckets, and such like articles, and also the discovery of a lot of strong Kaffir beer, the presence of which near our camp had been known for some little time on account of the number of white men in our hospital who had succeeded in getting intoxicating liquors.

On the same day that Mr. Boyes was here Surgeon-Major Reade, R.A.M.C., and Surgeon-Major MacMunn of the Volunteer Medical Staff Corps, who have been detailed by Lord Roberts to go over and prepare the ground for the investigations of the Medical Inquiry Commission, the members of which will arrive in South Africa on August 21st, and also Colonel Lucas, R.A.M.C., Deputy Adjutant-General of the Yeomanry, and Colonel Deane, who have both just come out from England to make a tour for the purpose of collecting information bearing on the services rendered by the Yeomanry throughout the war, arrived as well. Surgeon-Major Kilkelly, R.A.M.C., Grenadier Guards, who as I told you in my last letter has been most fortunately secured to act as commandant of our branch hospital in Pretoria, was stopping here at the time on his way up from Cape Town, and with these six visitors I spent the whole day in making a complete tour of inspection of the hospital. They went very minutely into details and statistics and seemed very pleased with everything they saw, particularly with the sanitary arrangements and with the laundry and disinfector and destructor. Indeed, one trembles to think how fearfully the work of the hospital would have been hampered if the committee in London had not foreseen the need for the heavy and extensive plant with which, I am thankful to say, we are equipped. Surgeon-Major Kilkelly was so struck with the excellence of the arrangements displayed by Miss Brereton in the various departments under her charge that he asked for the loan of her services for the development of the new branch, so she and her friend Miss Leggett, who has been working under her, are going temporarily to Pretoria. With their experience of the essentials of a mixed civilian and military hospital, coupled with that of Dr. Barclay Black and Sergeant-Major Mackay, who went up to Pretoria with Colonel Sloggett and are remaining there, and with that of Surgeon-Major Kilkelly, who, as you know, has been acting since last autumn as commandant of the now disbanded Portland Hospital, the success of the new branch ought to be assured. There seems to be no doubt now that Pretoria will be its home.

I am glad to say that Colonel Sloggett, R.A.M.C., got back this morning. He was hung up for some days by a fresh cutting of the line, south of Kroonstad this time. Everybody is glad to have him back, but nobody is more glad than I am, for the military administrative work is very uncongenial to a civilian who is not trained to it, and there is so much of it that on the top of multifarious other duties it gives the uncomfortable feeling that one is trying to do too many things and is in consequence doing much work badly.

To-day is the August Bank Holiday, so we had an open air concert in the afternoon at which there was a large and enthusiastic audience. Two or three of the farmers in the neighbourhood brought their families in and seemed to enjoy themselves very much. Whether it is intentional or not we are not sure, but it is not a rare thing for certain of these guests to get up and walk away before "God Save the Queen" is played. Others, however, seem markedly loyal. But loyal or disloyal they lose no opportunity of varying their monotonous lives by taking part in any

entertainments that are going on in our camp. I do not think that I ever told you that we are indebted to the ladies of the surrounding farms for having subscribed a fund for the purpose of putting a wall round our cemetery, whilst another colonial well-wisher has contributed young trees which are being planted among the graves.

There was quite a good Association football match here on Saturday between teams representing our orderlies and those of the Pretoria branch.

P.S.—Colonel Sloggett tells me that there is still no travelling north of Bloemfontein except during the daytime, that the line is being repeatedly cut almost daily by small commandos from 20 to 200 or 300 strong, and that in consequence there is a most fearful blockage of traffic, no fewer than 26 trains being at the present time kept waiting to go north at Bloemfontein. Food is therefore very scarce in Pretoria. There are very few sick and wounded in Pretoria now and so many nursing sisters that work cannot be found for all of them. He came down in No. 2 Hospital Train which has gone on to Cape Town but left three bad surgical cases here. At every hospital on the way down the authorities were anxious to take in this train-load, for there are many empty beds everywhere. No. 9 General Hospital, for instance, at Bloemfontein, which when I was there had 1800 patients in it, now has only 400. Colonel Sloggett says that the general impression is that all the heavy fighting is over, but that it will take some two months at least for the energies of those small flying commandos to be exhausted. Each man in Christian de Wet's reduced force is said to ride one horse and lead two others, and as he is thus moving extremely lightly without any wagons whatever he will presumably take a lot of catching even yet.

Deelfontein, August 6th, 1900.

A correspondent writes:—The photograph shows a convalescing soldier at No. 9 General Hospital, Bloemfontein, who was not posing for his portrait. The terrible condition of neglect in which he is plunged will strike the most casual observer.

NOTES FROM BLOEMFONTEIN.

(FROM OUR SPECIAL CORRESPONDENT.)

The general health of Bloemfontein continues excellent and at the moment of writing there are less than 1200 patients in the three general hospitals, nearly all of whom are convalescents on their way down from the front. The weather continues superb, but the rainy season (September) is rapidly approaching, when the lot of those in the marquee hospitals will not be a pleasant one.

I paid a visit a few days ago to No. 9 General Hospital, mainly to see the surgical cases, as I had been informed of the arrival of a convoy of wounded in this hospital some days before. Lieutenant J. W. Smith, R.A.M.C., kindly showed me round the surgical division, of which he is in charge, and drew my attention in particular to some 120 patients suffering from bullet and shell wounds who had been recently admitted, all convalescent or doing well. There were only two cases of shell wounds, one in the neck and one in the shoulder; small fragments of shell had been found in both and the wounds were nearly healed. The bullet wounds were nearly all penetrating wounds of the extremities. The wounds from Mauser bullets had all healed well and nearly all without suppuration. I noted particularly the following three cases as presenting points of interest, the first two being useful object-lessons of the value of the very completely fitted up x-ray room attached to the hospital.

CASE 1.—The patient, a private in the Royal Irish Fusiliers, had a bullet wound of the left arm. The bullet, a Mauser, had entered the arm obliquely on the anterior aspect just above the elbow. About an inch above the humerus was thickened and tender. There was no wound of exit and careful examination revealed nothing in the rest of the limb. Lieutenant Smith at first naturally thought the bullet was imbedded in the humerus at the point where thickening was felt, but on taking an x-ray portrait it was found to be plainly visible in the axilla. On cutting down it was seen lying on the sheath of the axillary artery and parallel to the vessel.

CASE 2.—The patient was a private in the Munster Fusiliers. A bullet passed through the left groin, through the scrotum, and into the adductor region of the right thigh. It was discovered by the x-rays in the upper part of the popliteal space and was cut down upon and removed. The testicles were uninjured.

CASE 3.—The patient, a private in the Munster Fusiliers, was hit by a spent bullet in the deltoid region just below and behind the acromion. The bullet could be felt beneath the skin of the posterior fold of the axilla. On removing it it was found notched at the point and much grooved and twisted. What caused this it is difficult to say. In the first two cases the bullets were unaltered.

In both Case 2 and Case 3 the tracks down to the sites of the bullets were completely healed, but in each case the bullet itself lay in a rough-walled cavity containing about a teaspoonful of thin yellow pus-like fluid.

Dr. R. W. Dodgson from St. Mary's Hospital, the bacteriologist sent out by the War Office, has been busily engaged for some time in his laboratory at the Raadzaal and also visits the hospitals daily. He has taken notes of the course, symptoms, &c., of a large number of cases of enteric fever attacking both inoculated and uninoculated, but he is as yet cautious in giving a definite opinion as to the effect of preventive inoculation. He informs me that no less than 75 per cent. of the so-called "simple continued fevers" which he has examined—and he has examined a very large number—give the Widal typhoid reaction with serum; on the other hand, he has seen five cases diagnosed as "enteric fever" in which the characteristic serum reaction of Malta fever was obtained. Cases of "veldt fever" did not react to either test. These facts are very instructive, as in the opinion of most competent observers out here the official statistics give an absurdly high mortality from enteric fever compared with the real mortality owing to failure to diagnose mild cases.

I find a pretty general consensus of opinion amongst officers of the Royal Army Medical Corps and civilian surgeons that the War Office hospital marquee is on the whole superior to its rivals the Yeomanry marquee and the much-vaunted "tortoise tent." The Yeomanry marquee is an ideal one in calm weather but it is dangerous in high winds as the unyielding sides act as sails; the tortoise tent has the great advantages of being very portable and of taking up but little space when pitched, but with 10 beds, the usual number, it is apt to be very stuffy and in high winds it is not as safe as the War Office marquee. For economy in administration a much larger marquee than any in use would be desirable, and it is possible that eventually some form of tent resembling the "store tent" used by the Ordnance Corps may be adopted. This is a large marquee, 30 feet by 60 feet, with three upright poles and a ridge pole;

it accommodates 20 patients easily and leaves plenty of space for tables, chairs, &c. I understand that one of these tents has been fitted up as a ward in one of the general hospitals—I believe by Lieutenant-Colonel Keogh, R.A.M.C.—as an experiment; the results will be awaited with interest.

I have just returned from a flying trip to Springfontein on No. 5 ambulance train, for which I am indebted to the courtesy of Major M. T. Yarr, R.A.M.C., medical officer in charge of the train. I was glad to have again the opportunity of inspecting an ambulance train and of admiring the completeness of all the arrangements. These trains are really luxurious hospitals on wheels and have performed invaluable service throughout the campaign. At Springfontein we found the entire *personnel* of the Welsh Hospital, headed by Professor Hughes, on the point of entraining for Pretoria; all were in the best of spirits and looking forward eagerly to their new sphere of work. Since their arrival in South Africa they have done splendid work in their camp at Springfontein, but they were naturally anxious to get nearer the front. Springfontein stands about 5500 feet above sea level, 1000 feet higher than Bloemfontein. The climate is very tonic and bracing, but the frequent high winds and dust-storms occasion no small discomfort. No. 3 General Hospital is established there and has an excellent site close to the station.

Bloemfontein, August 6th.

THE PLAGUE IN GLASGOW.

ON August 27th and 28th general currency was given to a disquieting report that cases of suspected plague had occurred in Glasgow. We made an announcement to that effect in THE LANCET of Sept. 1st (p. 716). At that date, there seemed to be no doubt, clinically and pathologically speaking, of the disease being plague, but the inoculation experiments were not completed. This confirmation of the clinical diagnosis was soon forthcoming, and the country was then made aware of the unwelcome fact that after an absence of more than 200 years the plague had once more obtained a certain amount of foothold in Great Britain. The circumstances of the two visitations, however, may be contrasted rather than compared. In the seventeenth century sanitary science could hardly be said to exist and the ravages of plague, small-pox, and "fever" were tacitly accepted as part of the ordinary course of events. At the present day, however, the origin and mode of propagation of epidemics are comparatively well understood, and the methods of controlling them have improved so much that there has been nothing of the nature of a serious loss of adult life from such causes in this country since the epidemics of cholera in the first 60 years of the present century and the epidemics of typhus fever and relapsing fever which accompanied the failure of the potato crops in Ireland in 1845 and 1846. The modern stumbling-block of epidemiologists is, in fact, constituted by diseases of infancy and childhood—scarlet fever, measles, and diphtheria—which although they receive but little attention from the general public nevertheless in the aggregate cause a great many deaths and too often inflict lasting damage on the health of those who survive the attacks. The large proportion of mild and untreated cases, which are nearly if not quite as capable of spreading the contagion as the most severe, and the long period of post-febrile infectiveness render these diseases almost ineradicable. The prevalence of enteric fever is well known to be a question mainly of excrement disposal, and in our towns and cities where the water-supply and sewerage are good its incidence is slight. Cholera is known to our populations only by name, because its spread has always been arrested at the moment of the discovery of the focus; and there is every reason to believe that modern sanitary methods will in like manner be able to localise the present outbreak of plague in Glasgow, especially as these methods are being employed with unsparing zeal by the medical officer of health of Glasgow, Dr. A. K. Chalmers. Through the courtesy of Dr. Chalmers we are enabled to furnish to our readers an account of the excellent precautions which have been taken under his supervision by the sanitary authorities.

That the disease could be arrested altogether or confined to the first cases recognised was too much to expect, for the cases with which the authorities are now dealing are not imported ones, but are examples of recent infection propagated from an unknown source and in an obscure manner, probably through the indiscriminate gatherings at two "wakes," one of which was held nearly a fortnight ago on the body of a dock-labourer's wife. Glasgow, of course, has a very large shipping trade with all parts of the world, and possesses docks and wharves extending for miles, so that the utmost vigilance on the part of the port medical authorities might fail to recognise a convalescent from plague brought in a steamer arriving from the Mediterranean or from Portugal. If the disease should unfortunately spread, some encouragement may be derived from the experience of the Australian colonies inhabited by a population of British origin and to a large extent living according to British usages. Plague made its appearance in New South Wales and Queensland in the early months of the present year, but has been confined to the cities of Brisbane and Sydney. In Sydney, with a population of 417,000, there were (as mentioned on p. 775 of our present issue) 302 cases, with 101 deaths, up to July 28th, at which date there were practically no fresh cases. During the first six months of each of the six years 1894–99 the average notifications of enteric fever in Sydney were 435, so that the attack-rate of plague was less than that of enteric fever, although, of course, the death-rate was higher. These figures prove clearly that there need be no panic in Glasgow.

The first cases of bubonic plague which came under medical observation in Glasgow were visited at their home at 57, Thistle-street on August 24th and were removed on the following day to the City Hospital for Infectious Diseases at Belvidere, where the disease was immediately suspected to be plague. We publish below Dr. J. Brownlee's and Dr. J. C. McClure's excellent account of the clinical aspect of the two cases upon whose symptoms the diagnosis of plague was founded. Our readers will be able to appreciate from these accounts the thorough nature of the way in which the disease was grappled with at its onset. No time was lost, no precaution spared. We also publish below from Dr. Thomas Colvin, who was early called to the cases, a preliminary note upon them. With great clearness he details the symptoms and environment of the sufferers and points out the difficulty of diagnosis. To the fact that Dr. Colvin, while hesitating to give a name to the condition, clearly recognised that he was dealing with a highly infectious malady, Glasgow may probably owe a debt of untold greatness. The provisional diagnosis of plague was soon confirmed by inoculation experiments. On August 31st there was a meeting of the magistrates' committee and the health committee of the corporation, at which the medical officer of health recommended that a considerable area surrounding Thistle-street should be deemed infected. He therefore reported that plague existed in the district bounded by Cumberland-street on the south, South Wellington-street on the east, Adelphi-street and Carlton-place on the north, and Bridge-street and Eglinton-street on the west, and that it would be desirable to use special sanitary measures in order to prevent the spread of the disease. The magistrates' committee having considered the report approved thereof and remitted to the medical officer of health powers to forthwith enforce the provisions of section 254 of the Glasgow Police Act, 1866, within the said district. The medical officer of health further proposed that the following measures be immediately taken. 1. (*a*) That in each "land" from which a case is removed the lobbies, staircases, common passages, and each house be disinfected and cleansed by the sanitary department, the cleansing department making special arrangements for emptying and cleansing ashpits and hosing out courts; (*b*) that tenements from which "contacts" are removed be dealt with similarly to the foregoing. 2. That the district above defined be constituted a special cleansing area, the provisions to include a thrice-weekly emptying of ashpits, limewashing thereof, hosing of courts, special removal of rubbish, &c. 3. That medical inspection of the district be organised and carried out by the medical staff of the sanitary department, with the addition of two duly qualified and suitably experienced medical practitioners,

and that inoculation with anti-plague serum be offered free of charge where deemed advisable. 4. That a special sanitary inspection for dirty stairs and houses and for overcrowding of houses be instituted. 5. That rat-catchers be employed for service where deemed necessary within the said district. 6. That a handbill be posted within the district directing the attention of the public to the fact that immediate medical attention may be had from the sanitary department on communicating therewith through the nearest police office or station. The committees approved of the foregoing proposals and directed the sanitary inspector, the superintendent of cleansing, the chief constable, and all other officials interested to act in constant coöperation with the medical officer of health in fully and effectually carrying out the said proposals and safeguarding the public health.

The medical staff of the health department was at once increased by the appointments of Dr. Frederick Dittmar and Dr. Alfred Webster who have had experience of infectious diseases in Belvidere Hospital and who now have the duty of examining all infectious and suspected cases in the above-mentioned plague-infected area. Every infected house has been denuded of its clothing and bedding, the furniture has been thoroughly fumigated with sulphurous acid, the walls and ceilings have been whitewashed, the floors and woodwork have been washed with carbolic acid solution, wearing apparel has been treated with a solution of corrosive sublimate, and all beds have been either treated in the steam disinfector or else destroyed. Staircases, landings, and lobbies leading to infected houses have been whitewashed. All the wet ashpits and privies of the city have been limewashed. Two reception houses are in use, one in Provan-place, North Montrose-street, and the other in Weaver-street. In these two houses by Sept. 5th 111 persons had been kept under observation, of whom several were attacked by plague. It is intended that those in whom no symptoms make their appearance shall be liberated after 12 days' detention. On Sept. 5th there were in the Belvidere Hospital 13 cases of plague.

A disconcerting circumstance is the discovery of an undoubted case in the adjoining burgh of Govan situated on the south side of the river Clyde immediately below Glasgow. This patient was a boy, nine years of age, who resided with his parents at 634, Govan-road, nearly two miles from Thistle-street. Early on August 29th he was seized with headache and vomiting and on August 31st he died suddenly. It is not known how the disease may have been contracted, but, as Dr. Colvin points out very clearly in his statement, there were several days during which the first patients were visited by promiscuous acquaintances. Yersin's anti-plague serum has been obtained from the Pasteur Institute in Paris and on Sept. 3rd the medical men and nurses in attendance on cases of plague at Belvidere Hospital were inoculated with it.

Attention may here be called to a remarkable paragraph in the letter of our Berlin correspondent published on p. 772 of our present issue. He states that some days before plague was discovered at Glasgow a German newspaper (which he does not name but which was, perhaps, the *Berliner Lokal-Anzeiger*) stated that it was believed at the German Imperial Health Office that Cardiff and some other British ports were infected with plague. We are not surprised that such belief should be rife, for our less responsible press do their best, it would seem, to give such impressions to our continental neighbours. We should much like to know where the circumstantial story of an outbreak of plague at the Albert Docks, which was widely circulated at the beginning of the week, had its malignant origin.

A STATEMENT FROM THE MEDICAL OFFICER OF HEALTH OF GLASGOW.

Dr. A. K. Chalmers, medical officer of health of Glasgow, sends us the following statement with regard to the circumstances, so far as at present they are known, attending the existence of cases of plague in Glasgow:—

A child and its grandmother Mrs. B——, living in the same house at 71, Rose-street, South Side, Glasgow, sickened suddenly on the evening of August 3rd, the child dying on the 7th and the grandmother on the 9th, the cause of death of the child being certified as "zymotic enteritis" and of the grandmother "acute gastro-enteritis." In both cases a wake was held. The grandmother was buried on the 11th. Although the husband of this latter patient sickened on the 12th he was only admitted to hospital on Monday, August 27th, certified "enteric fever," when he was recognised to be suffering from plague.

Concurrently with the later developments in this household the following illnesses were appearing in the members of a family living in 57, Thistle-street, some of whom had either attended Mrs. B——'s wake or were present during the illnesses in her house. On the evening of Sunday, August 19th, a child, Christina M——, 10 years, sickened with acute symptoms which ended fatally at mid-day on the 21st. She was only medically visited, however, within 10 minutes of her death. The symptoms were those of pneumonia and the cause of death was certified as "acute pneumonia." Before the child died the mother had already sickened (on the 20th); a son (since dead) sickened on the 22nd; and a half brother, a young child of three years, sickened on the 23rd. These three were first seen by Dr. Robertson, who had also seen the child Christina, and later by Dr. T. Colvin who, on discovering that Dr. Robertson had already visited the patients, went to confer with him regarding the symptoms. The action in which this conversation ended is thus described by Dr. Robertson:—

> We were satisfied that they were cases demanding the attention of the sanitary authorities, and I agreed with Dr. Colvin that, having both seen them independently, we should both notify them as cases of enteric fever, with a mark of interrogation after it, to imply that the diagnosis was not definite, but that they were evidently of an infectious nature, and should be removed at once.

On August 25th they were accordingly notified and the patients were removed to the hospital on the same day.

On admission Dr. J. Brownlee, the physician superintendent of the Belvidere Hospital, made a careful examination of the cases which resulted in his coming to the conclusion that the patients were suffering from bubonic plague, although they were inhabitants of Glasgow and there was no known case of bubonic plague in Britain. Dr. Weir, senior assistant physician at the hospital, and Dr. Knight, my assistant, concurred in the diagnosis. Dr. McClure, acting superintendent of the Small-pox Hospital, immediately examined blood-films obtained by hypodermic puncture of the buboes, with the result that the typical forms of the bacillus pestis were observed. Immediately on this conclusion being arrived at Dr. Knight visited the patient's house, verified the story of the illnesses and death, and arranged for the removal of the other members of the family to the reception house for observation. Cultures taken on glycerine agar showed by the evening of the 26th and the morning of the 27th the typical appearances both macroscopical and microscopical of the bacillus pestis. Later in the week they were fully confirmed by animal experiments by Dr. R. Muir, professor of pathology in the University of Glasgow, in the absence of our own bacteriologist, Dr. R. M. Buchanan. On the same day that these three cases were admitted (August 25th) another woman, Mrs. T——, living at 23, Oxford-lane, had been admitted, her disease being certified as typhus fever. This disease was excluded on examination, and owing to the presence of an inflammatory condition in the left groin and a history of recent confinement the provisional diagnosis of pelvic cellulitis was entertained. Later her association with the B—— family was discovered and the diagnosis revised in the light of the symptoms presented by these others.

Immediately the suspicion of plague was created a medical examination was made of all persons who could be discovered as having attended either the B—— wake, or the wake of the child M——, with the following result:—

A.—Discovered ill in their own houses.

1. Two children, sons of Mrs. T——, already referred to. One of them is not suffering with plague.

2. A girl named McK——, residing at 57, Thistle-street.

B.—Removed to reception house. Fully 100 persons who were not obviously ill, but had visited one or other of the houses named, were removed to the reception house for observation and three of them have since sickened (M——, McG——, and D——).

Two further cases (F——, 77, Rose-street, and C——, 1, Well-street, Calton) were afterwards brought under notice of the department by medical practitioners, presenting symptoms of plague and after examination removed to hospital. C—— has an indirect connexion in respect of having slept in a house next door to that of the B—— family on August 15th, and F—— is a jobbing shoemaker living in the adjoining tenement.

By Sept. 2nd 14 cases had been placed in hospital, one had died, and of those then remaining 12 present the clinical

SUMMARY OF CASES WITH DATES OF SICKENING AND EXPOSURE AS FAR AS THEY ARE KNOWN.

Deaths at Home assumed to be Due to Plague.

Name.	Age.	Address.	Sickened.	Died.	Remarks.
(1) Baby in B. family	—	71, Rose-street.	August 3rd.	August 7th.	—
(2) Mrs. B.	—	,,	,, 3rd.	,, 9th.	Wake held August 9th and 10th.
(3) Christina M.* ...	10	57, Thistle street.	,, 19th.	,, 21st.	,, ,, 21st and 22nd.

* Attended the B—— wake.

Cases Removed from their Homes.

Name.	Age.	Address.	Sickened.	Removed to hospital.	Where exposed to infection.
B (1) James B. ...	60	71, Rose-street.	August 12th	August 27th	Wife died August 9th (see above).
B (2) Pat. F. ...	56	77, ,,	,, 13th	,, 29th	A jobbing shoemaker living near B——'s, but definite contact not traced.
B (3) John C. ...	24	1, Well-street, Calton.	,, 17th	,, 30th	Slept in house adjoining B——'s on August 13th.
B (4) Mrs. T ...	—	23, Oxford-lane.	,, 12th	,, 25th	Relations and visitors at B——'s.
(5) James T.† ...	9	,,	,, 21st	,, 29th	
(6) Dennis T. ...	6	,,	,, 21st	,, 29th	—
B (7) Mrs. M. ...	—	57, Thistle-street.	,, 20th	,, 25th	Attended B——'s wake. Child died at home on August 21st (see above).
B (8) Pat. M. ...	21	,,	,, 22nd	,, 25th	Pat C. M. died in hospital on August 27th.
(9) Wm. M. ...	3	,,	,, 23rd	,, 25th	—
(10) Annie McK.	12	,,	,, 28th	,, 29th	At B——'s wake and afterwards in house.
B (11) Thomas H.	14	6, South Coburg-street	,, 23rd	,, 29th	At M——'s on August 20th.

B. Bacillus obtained. † James has not plague but a gluteal abscess.

Four cases occurred among contacts who sickened in the Reception House—viz., Jane M., Arch. D., Pat. McG., and Angus R. Two sickened on August 29th and two on August 31st. All four were at the M.'s wake. These bring the total of cases to 13, excluding James T——.

symptoms of plague. In eight the diagnosis was microscopically verified; and in one the diagnosis remained doubtful for a time, but plague is now excluded. Since that date four other persons who had been in contact with affected persons were admitted on suspicion. In two the diagnosis later definitely excluded plague, in one the condition is regarded as pestis minor and in one the diagnosis still remains doubtful.

At the present moment it is impossible to make any definite statement as to the source of the infection of the first two cases in the B—— family. The husband of the elder patient was in the service of a local shipping company as a dock-labourer, and employed by them at their wharves on the south side of the river. He was engaged exclusively on vessels trading between home ports. His illness only developed after his wife died, and may be regarded as resulting from this or from his grandchild's illness. His daughter, the mother of the child who first died, is said by her father to have been ill for two days shortly before her child sickened. She now displays, one month afterwards, very slight enlargement of the cervical and axillary glands on both sides, which compared with the glands of a normal girl—definitely non-infected—of corresponding age indicate some irritative process recently active. This girl meanwhile stoutly denies any illness, and it must be remembered that she had nursed her baby for some time. The father of the child is an ironworker in constant employment. He has had no illness and presents no evidence of glandular enlargement.

CLINICAL ASPECTS OF CASES OF PLAGUE UNDER TREATMENT.

Dr. John Brownlee, physician superintendent of the City of Glasgow Small-pox Hospital, and Dr. J. Campbell McClure, M.B., acting superintendent, send us the following interesting account of the clinical aspects of the cases of plague now under treatment in the City of Glasgow Fever Hospital, Belvidere:—

The patients admitted to this hospital suffering from plague may be divided into three classes: (1) those who had solitary bubo; (2) those who had the more generalised form of the disease where several groups of glands were involved; and (3) those very mild infections which it would be quite impossible to recognise apart from the history of infection. Yet these cases undoubtedly correspond to those cases of sore-throat which represent the mildest form of scarlatinal infection, or to those cases of slight febricula noticed among children who have been exposed to the infection of typhus where the fever aborts prior to the appearance of the eruption, and where association affords the only certain means of forming an opinion.

All the cases, however, have had certain groups of symptoms in common. The initial symptoms of headache and general malaise with nausea and vomiting have occurred with remarkable uniformity, even although the fever might be very slight. Following on these there was an almost uniform complaint of pain in some one or another group of the lymphatic glands. As far as observations have as yet gone the *facies* of all the patients has been characteristic. In severe cases, and in the earlier stages of even the milder cases, the expression of the face has been dull and yet apprehensive, the degree of stupor depending upon the gravity of the illness. In the milder cases the patients have looked ill out of all proportion to the amount of fever present and the degree of enlargement of the lymphatic glands, and have retained the peculiar *facies* for some days after all constitutional symptoms have disappeared. The buboes have exhibited all degrees of severity from the single slightly enlarged gland of the abortive type of the fever, through the fairly large and very tender buboes of the generalised type with or without reddening and œdema of the skin, to the large and intensely inflamed mass of glands seen in the cases of solitary bubo, where the redness of the skin and the œdema of the neighbouring tissues might extend to about nine inches or even more from the centre of the disturbance. The duration of the fever has varied from the slight febricula of the abortive type where the temperature may not have exceeded 100° F. to the severe fever of the generalised and true bubonic types. In the latter the fever has run a course resembling that of the better known typhus and enteric fevers. Crisis has been present in all our severe cases and it has occurred from the twelfth to the twentieth day. The tongue has been a very marked feature of the illness, for except in the two most protracted cases where the fever has run a course of about 20 days there was no tendency to dryness. It has been usually moist, covered on the dorsum with a greyish fur, and with the edges clean and red.

We record the clinical features of the two cases on which the diagnosis was originally based:—

(1) Patrick Malloy, aged 21 years, 47, Thistle-street, Glasgow, was admitted on August 25th to the hospital, his case being certified as "enteric (?)."

History.—Patient has been living in the same room as his sister, who sickened on August 19th, and died on the 21st, of what was presumably plague. There is no other known source of infection. The incubation period is, therefore, probably under four days. As the patient is not in a condition to give an account of himself the information was obtained from his mother who volunteered the following history. Until three days prior to admission the patient appeared in his normal state of health. On that date (August 22nd) he suddenly experienced a shivering associated with sickness, vomiting, diarrhœa, and pain in the abdomen. During the night the patient was evidently delirious, and delirium has been a notable feature of his illness until the time of admission. With the exception of measles and whooping-cough patient has suffered from no other infectious disease.

Condition on admission.—On admission the patient looked extremely ill. He was clearly in a state of semi-coma. The face generally was of a greyish colour with a more marked circum-oral pallor. In spite of the stupor in which the patient lay the expression of the face was distinctly anxious; there was marked knitting of the eyebrows, the eyes were widely open, and the conjunctivæ were slightly congested. The respirations were slow, numbering 18 per minute, and sighing. The skin generally was hot and dry. It was covered with a faint purplish mottling most marked across the lower part of the abdomen, the arms, and the buttocks. The characters of this eruption somewhat resembled the skin conditions of typhus fever. The tongue was moist and covered in the centre with a thick greyish fur while the edges were clean and red. There was no congestion of the fauces. There was in the upper part of the deep cervical chain a swelling composed of one moderately enlarged and several slightly enlarged lymphatic glands. The tissues surrounding these were markedly infiltrated and the skin was reddened and œdematous. Manipulation of this swelling was evidently very painful. There was no enlargement of glands in the right cervical region or of the superficial chain on the left side. The right axilla was filled with a large mass evidently composed of lymphatic glands embedded in œdematous cellular tissue. Here, again, the skin was red and œdematous and movement of the arm or even the lightest palpation gave rise to exquisite pain evidenced by the wincing of the patient even in his semi-comatose condition. In the left axilla a few glands were slightly enlarged but not tender. No enlargement of glands was apparent in either groin. The temperature was 103·6, the pulse was very soft and easily compressible and numbered 128 per minute. The lungs revealed nothing noteworthy on physical examination. The cardiac sounds were pure; the first sound was rather weak. The abdomen was not distended and was neither painful nor tender. There was no apparent enlargement of either liver or spleen. Exploratory puncture of the glands of the axilla was performed and an immediate examination of films prepared from the blood withdrawn revealed the presence of a considerable number of bacilli morphologically identical with the bacillus pestis of Kitasato.

On August 26th the general condition of the patient remained much the same, though the respirations were more rapid, numbering 28 per minute, but the local conditions had undergone marked alteration. In particular the lymphatic glands on the left side of the neck before mentioned were much more enlarged and the superficial glands on that side were now considerably involved. Late in the afternoon the glands in the left groin were easily palpable and slightly tender. The œdema in the right axilla was more extensive, involving the anterior border. The spleen was found to be enlarged to percussion though not palpable below the costal margin. The temperature at 6 A.M. was 102·4° and at 6 P.M. 104·4°. The pulse in the morning was 112 and in the evening 132 and even softer than on the previous day. On this evening the glycerine-agar cultures made after puncture of the glands on the 25th and incubated for 24 hours at 37° C. were examined. There was a faint surface growth composed of minute whitish translucent colonies. Cover-glass preparations were made from this growth and stained with an aqueous solution of gentian violet. These showed the presence in pure culture of a short bacillus with rounded ends, tending to run in pairs and showing well-marked bipolar staining. The bacillus was decolourised by Gram's method. The character of the culture and the morphological appearances of the bacillus and its staining reactions confirmed the diagnosis made from the examination of the films on the 25th that the organism under consideration was the bacillus pestis.

On August 27th the local conditions had if anything advanced, but the general condition of the patient was rather better. There was a little less mental obtuseness though it was still with great difficulty that he could be got to show his tongue. This improvement, however, was not maintained. By mid-day the patient was cyanosed and the pulse was notably weaker. He sank rapidly and died at 3.35 P.M.

Report by Professor Muir on the Post-mortem Examination of Patrick Malloy.

The body of the deceased is that of a fairly well-nourished though rather slightly-built man. There is a distinct swelling in the right axilla and also a well-marked swelling in the left side of the neck. In the left groin there is a fairly distinct swelling and also a very slight one in the right groin. Well-marked hypostasis and diffuse congestion exists in the region of the neck.

Thorax.—The pericardium contains about half an ounce of blood-stained serum. The right side of the heart is greatly distended with dark-coloured partially clotted blood, while the left side is rather contracted and empty. The cavities are of normal size and the valves appear healthy. The heart muscle is rather paler than normal, but not specially soft. Over the apex of the left lung are a few old adhesions. There is no fluid in the pleural cavity. The lungs show marked hypostatic congestion and also some collapse but no pneumonia. The glands at the root are not affected. The bronchi contain some purulent mucus. The right lung is adherent all over especially over the lower lobe. There is an old cicatrix on the chest wall over this part (resection of rib?). This lung is otherwise in a practically similar condition to the other.

Abdomen.—The peritoneum is normal. The spleen is enlarged, weighing 12½ ounces, the increase being chiefly in breadth. The consistence is softer than normal but by no means diffluent. The pulp presents a pale and mottled appearance and the Malpighian bodies are small and distinct. The liver is somewhat swollen, pale, and soft, and evidently the seat of cloudy swelling in a marked degree. Both kidneys are somewhat swollen and soft owing to cloudy swelling of the cortex. No hæmorrhages exist. The pancreas is slightly swollen and softer than the normal. The suprarenal bodies are rather swollen and softened

Lymphatic glands.—The glands in both groins show enlargement especially in the vertical group along the vessels. They are somewhat irregular on the surface, extremely tense, much congested, and show small hæmorrhagic points. The substance is rather softer than normal and there is no evidence of suppuration. The enlargement also affects the glands along the inguinal vessels and some of them are distinctly hæmorrhagic. The retro-peritoneal glands along the aorta show great swelling but none of them reach great size. In the right axilla there is a large swelling almost as large as a closed fist composed of a mass of enlarged glands bound together by infiltrated tissue. The largest single glands are about the size of a small plum. They are of a dark red colour owing to the diffuse hæmorrhages into the substance and here and there show partial softening. The periglandular tissue is the seat of a gelatinous œdema with diffuse hæmorrhages. The involvement of the glands extends upwards behind the clavicle. On the right side there is great enlargement of the cervical glands below the sterno-mastoid muscle, where there is a large irregular mass. The amount of hæmorrhage is extreme, some of the glands presenting a deep crimson colour and being also much softened. Here, also, there is much inflammatory infiltration. The glands in the upper mediastinum are also enlarged and surrounded by inflammatory œdema. A scraping from one of the inguinal glands shows enormous quantities of the bacillus pestis.

The examination of cultures made at the time on glycerine agar by Dr. McClure showed pure cultures of the bacillus pestis from the liver, the kidneys, and the lymphatic glands, while from the spleen a mixed culture of bacillus pestis and bacillus coli communis was obtained.

(2) Mrs. Malloy, aged 40 years, of 57, Thistle-street,

Glasgow. Admitted August 25th to the hospital, the case being certified as "enteric (?)."

History.—The patient on the night of August 10th was at the wake of a Mrs. Bogan, who died of what was presumably plague. There is no other known source of infection. The incubation period is, therefore, presumably ten days in this case. On admission the patient stated that she was first taken ill on August 20th with shivering, vomiting, severe headache, diarrhœa, and slight pain in the abdomen. Next day she felt uneasiness in the right groin, and on examination she found a small swelling which was very tender. The general symptoms became more urgent and the swelling in the right groin increased rapidly in size and in tenderness. During the whole of her illness she was confined to her bed.

Condition on admission.—The patient was quite intelligent but looked very ill. The face was slightly flushed and wore a rather anxious expression. The pupils were moderately dilated but there was no injection of the conjunctivæ. The tongue was moist and only slightly coated in the centre with a whitish fur. The skin was hot and dry and no eruption was noticed on any part of its surface. In the right groin there was a mass evidently composed of enlarged lymphatic glands surrounded by inflammatory tissue to the extent of obliterating the fold of the groin. The skin over the mass and for a considerable area around about, particularly laterally, was deeply reddened and œdematous. Over this area the tenderness was extreme, much exceeding that usually elicited in ordinary infective buboes. At the upper border of the swelling deep palpation showed that numerous glands in the deep group of lymphatics were also enlarged and tender, but there was practically no infiltration of the cellular tissue of this region. The skin over the right iliac region was normal in appearance. The glands in the left groin and in the axillary and cervical regions were not palpable. Nothing noteworthy was discovered in the heart or in the lungs. There was no enlargement of the liver or of the spleen. The temperature was 102° F. The pulse was soft and full, numbering 92 per minute. The respirations were easy and numbered 28. In the evening the patient complained of very severe headache confined to the frontal region. The temperature was 103·4° and the pulse was 112, while the respirations had increased in rapidity to 30 per minute.

On August 26th there was practically no change in the patient's condition. The morning and evening temperatures were respectively 102° and 101·8°, and the corresponding pulse-rates were 72 and 80.

On August 27th the morning and evening temperatures were 102° and 100·4°, and the pulse-rates were 76 and 80. Though the respiration-rates corresponding to these were respectively 30 and 26 there was no evidence of any pulmonary lesion.

August 28th was the day of the crisis, the temperature falling during the day from 101·4° to 98·6°, the pulse showing a corresponding drop from 78 to 64. At the same time the headache, which had been a clamant symptom up till that date, disappeared, and although no obvious change had occurred in the bubo in the right groin the tenderness was distinctly less. The patient also expressed herself as feeling much better. Since the occurrence of the crisis there has been up to this date continuous improvement in the patient's general condition, while at the same time most of the redness and œdema have disappeared from the right groin, though a small hard swelling still remains.

Bacteriological examination.—Four hours after admission a puncture was made into the glandular mass in the right groin and some blood was withdrawn. From this cover-glass films were made and glycerine agar tubes were inoculated. Immediate examination of the films after staining with gentian violet showed the presence of considerable numbers of short bacilli morphologically identical with the bacillus pestis. The inoculated tubes were incubated at 37° C., and 24 hours later a faint white surface-growth had appeared composed of small translucent colonies. Microscopical examination of cover-glass preparations made from these colonies stained with gentian violet showed, as in the previous case, that they were composed of short, thick bacilli with rounded ends, showing for the most part well-marked bipolar staining and occurring frequently as diplobacilli. When treated by Gram's method the bacillus was decolourised. The appearance of the cultures and stained films placed the diagnosis of the organism as bacillus pestis practically beyond a doubt.

In the hospital the plague patients are isolated in a separate pavilion which is surrounded with a high wall preventing the access of all but those whose business it is to attend the sick. All the discharges, fæces, urine, sputa, &c., are placed in vessels containing a suitable amount of 5 per cent. solution of phenol while kept in the ward. They are removed twice a day and boiled in the cholera autoclave before being passed into the drains. All the soiled linen and bedding are boiled for two hours in a steam boiler before being removed from the plague enclosure. The bulk of the patients' clothes is burned on admission, only the more valuable articles of apparel being retained for disinfection by superheated steam. The nurses have all special overalls for use in the ward.

All the nurses and persons who are in immediate attention on the sick, as well as the resident medical staff, have received an inoculation of Yersin's antiplague serum. This has been used in place of Haffkine's as the epidemic broke upon the hospital with a suddenness which necessitated the employment of the whole staff at present required, and it is considered unsafe to inoculate persons who have been exposed to the plague with Haffkine's serum.

It may be stated to the credit of the nursing staff that we have had no lack of volunteers to attend on the infected persons.

A PRELIMINARY NOTE ON THE OUTBREAK OF BUBONIC PLAGUE IN GLASGOW.

To Dr. Thomas Colvin, late physician to the Glasgow Central Dispensary and extraordinary physician to the Glasgow Victoria Infirmary Dispensary, we owe the following account of the beginning of the outbreak of plague in Glasgow.

At five o'clock in the afternoon of Friday, August 24th, I was called in to see a patient at 57, Thistle-street, which is on the south side of the river Clyde and fully half a mile from Kingston, which is the nearest dock to it. The street is one of the most densely populated in the city, and No. 57 has the reputation of being insanitary. It consists of a tenement of three flats with two entrances to them. The tenement is bounded on the right by another tenement of two flats and on the left by a low-roofed carpenter's shop. In going from the street to the tenement a rectangular passage has to be traversed. This rectangular space is about 25 by 15 yards. In the right hand corner of the space and about four yards from the side of the tenement in which is situated the infected house is an open dustbin. But the important point from a sanitary standpoint is that this space is usually the resting place of hand-barrows which are used by some of the dwellers in the tenement for hawking in the streets herrings or cheap fruit, and it (the space) is not uncommonly the receptacle on Saturday night of putrid herrings and putrid fruit which would be unsaleable on the Monday. Whether the herrings and fruit are in the first instance emptied into the dustbin and then scattered about by the children I cannot say, but the fact remains that I have myself on a Sunday morning seen the place strewn with putrid herrings and fruit and other refuse and even fæces.

The entrance to the part of the tenement in which is situated the infected house is about eight feet long by four feet broad. Up three steps is the first flat with two houses, up 12 steps is the second flat with four houses, and up another 12 steps is the third flat with four houses. In all there are 10 separate houses in one half only of the tenement, having one entrance to them from the space described. Each house has affixed to the outside of the door a little oval ticket on which is stated its dimensions and the number of inmates it is supposed to shelter. These tickets, if I mistake not, were first instituted by my old teacher and ever kind friend, Sir W. T. Gairdner, K.C.B., when medical health officer of the city; and by limiting the number of inmates in each house have proved an effectual means of stamping out typhus fever, which was at one time the scourge of the congested parts of the city such as Thistle-street. The ticket on the affected house stated that the dimensions of the house were 1612 cubic feet, and that it was to shelter four adults. The house itself, which was situated on the right-hand side of the second flat, consisted of two apartments, or what is commonly termed here "a room and kitchen." The part of the house called the kitchen was about five yards by four and the room was about six yards by four. In these two rooms ate and slept and washed and dressed and had their being Mrs. Malloy, aged 40 years (mother), Charles, aged 24 years, spirit salesman (son), Patrick, aged 20 years, slipper-maker (son and now deceased), Agnes, aged 18 years (daughter), Christina,

aged 10 years (daughter and now deceased), and William John, aged three years (son). It is important to note that the two sons did not follow the sea and were not in any way connected with the docks. The spirit shop in which Charles served is in Thistle-street, and the factory in which Patrick worked is in the east-end and away from the shipping.

On entering the house on the afternoon named I was conducted through the kitchen to the bedroom in which lay Patrick Malloy. I was told that he vomited on the previous Tuesday and had been ill ever since. He had "raved" all the previous night and had been so delirious that they could not keep him in bed. I found him to be an ill-developed muscular lad of the working-class. He was evidently in a semi-comatose condition. He was dull, stupid, and very prostrate. I could elicit no answer to any question I put to him regarding his illness; nor did he make any response to a repeated request to put out his tongue. His temperature was 103° F. His pulse was 130, small, and feeble, and the first sound of the heart was indistinct. As my first impression was that I had to deal with a case of acute lobar pneumonia in perhaps a drunkard—for at this stage of my examination I was told nothing about the other patients—I made a careful examination of the chest, but it revealed nothing definite beyond congestive catarrh of both bases. I then thought of enteric fever and made inquiries about the stools. My informant, a neighbour woman, said that he had diarrhœa, and without any suggestion of mine volunteered the information that the stools were like "pea-brae" (the word "brae" is the Scotch equivalent for soup) and had an "awful smell." I asked if he had been having any opening medicine and she said that the medical man had ordered him castor-oil and that it was after this he had had diarrhœa. This was my first information that another medical man had been there before me. I was also told that there was another patient in the kitchen bed, and that a little girl, the sister of the patient I was examining, had died on Monday, August 20th, within 24 hours of being taken ill. The medical man who saw her only 10 minutes before her death had certified the cause of death as being pneumonia. On continuing my examination I tried to find rose-spots on the abdomen, but there were none, and indeed no rash of any kind except a good crop of flea-bites. No enlargement of the spleen could be made out on percussion. The tongue was tremulous and of a typhoid character. There was no vomiting after the first day. The bowels were loose after the castor-oil. He had passed little urine during his illness.

I left him and went into the kitchen to examine his mother. Her illness had begun with vomiting on Wednesday, August 22nd, which had since been very persistent in spite of severe poulticing over the abdomen. She was a well-developed woman of the working class with perhaps excess of adipose tissue. She was quite conscious and her one complaint to me was the vomiting. Her temperature was 102°. Her pulse was 100 and of good strength. The heart sounds were normal. The chest was normal save for a little bronchial catarrh. There were no rose-spots or rash of any kind, except a big erythematous patch on the upper two-thirds of the abdomen, the result of poulticing. Still having enteric fever in my mind, I palpated her right iliac region and she said it was painful. It is very important for the sequel to note that the pain might have extended along the groin, but I had no reason to examine the groin and did not do so. It is still more important to note that she had a distinct painful swelling on the upper third of the anterior surface of the right thigh. I was only informed afterwards of its existence by the medical man who first saw her, and on whose attention being drawn to it by the patient had ordered it to be poulticed. The poultice had either soothed it or she was so anxious about the vomiting that she forgot all about it, for she did not complain of it to me. Her whole appeal was for something to relieve her vomiting. Her tongue was flabby and furred. There was persistent vomiting. There was no diarrhœa and her bowels had been well cleared out with castor-oil. She passed urine freely.

I then noticed a little boy lying beside her in bed and I asked what was the matter with him. I was told that he was now all right, but that he also had vomited on Wednesday and up to that day (Friday) his skin had been "roasting." I made his elder brother lift him out of bed and I examined him. His temperature and all his organs were normal. I could make out nothing the matter with him, but as his elder brother and sister were positive that his skin had been "roasting" for three days I concluded that he had the same disease as the other two patients.

To sum up, what, then, was my diagnosis on the spot on my first and only visit to the house? I excluded at once ptomaine poisoning due to eating diseased meat or fish or putrid fruit, for there was a distinct absence of a sudden and common onset and an abrupt termination. The onset of the disease was gradual and so far as I made out in the following order. Christina vomited and died within 24 hours on Monday, Patrick vomited and was ill on Tuesday, while William John and his mother vomited and were ill on Wednesday. When we find four apparently healthy individuals of the same household struck down within a day of each other with a disease characterised by a temperature of 102° F. I think that it is an easy deduction that the disease must be an acute infectious disease. Hence I had no hesitation in the first part of my diagnosis that the disease was an infectious disease. As to the particular infectious disease I was in doubt.

I did not think of typhus fever, which is said closely to resemble bubonic plague, for I had been fortunate three years ago in seeing a case of that disease in Crown-street, which is the next street parallel with Thistle-street, and in this case there was a well-marked dusky measly rash all over the body. In the Malloy cases there was no rash and the only symptom that might have suggested typhus fever apart from enteric fever was the delirious, semi-comatose prostrate condition of Patrick. I did not think of small-pox although we have it in the city and two months ago I detected a case in Adelphi-street which runs along the foot of Thistle-street. Here again I had a well-marked papular rash to guide my diagnosis.

I did think of enteric fever in an early or obscure stage and believed that probably the classical symptoms of that disease would develop later. The arguments which I marshalled in my mind in favour of enteric fever were (1) the temperature, (2) the suggested pea-soup stools with an offensive odour, and (3) the pain in the right iliac region present in the case of the mother. An additional and strong argument was that in August of last year on exactly the opposite side of the same street I had seen three cases of enteric fever and in the same month within a radius of 500 yards of the same street seven or eight cases of enteric fever. Indeed, the locality in autumn is the happy hunting-ground of the typhoid bacillus. Hence my diagnosis on my first and only examination of the Malloy cases was (1) that they were cases of an acute infectious disease and (2) that they were probably early or obscure cases of enteric fever and that some of the classical symptoms of that disease would develop later, but at any rate they were cases requiring close observation for developments.

Before leaving the house I warned the people that the disease was a dangerous and highly infectious one. I forbade the entrance of all friends and neighbours. I gave them instructions about the utensils the patients were using, and isolated the latter as best I could under the circumstances. I said that I would have them removed to the hospital as soon as possible. My first duty on leaving the house was to seek the medical man who had also seen the patients. I may here say that my reason for not sending for him when I learned in the middle of my examination that he had seen them was that the Malloy type of patient belongs to no man, for he changes his medical attendant with the weather and, as a rule, goes to the cheapest man. Two hours later I found the medical man who had seen the patients before me, and on talking over the matter we both agreed to notify the cases at once as doubtful cases of enteric fever. Half an hour later, or two and a half hours after I had seen them, I notified Dr. A. K. Chalmers that there were three doubtful cases of enteric fever in 57, Thistle-street. While I acted promptly I now regret that I posted the notification in the usual course and did not send a special messenger in the endeavour to have the patients removed to the hospital that same night. I am convinced, however, that little or no mischief was done between my visit and the removal to the hospital, for I had warned the people and partially isolated the sick. The mischief was done during the whole week that they were ill and were being visited by friends and sympathisers from all parts of the city. Dr. Chalmers probably got my notification by the first post the next morning, and Charles Malloy afterwards informed me that his mother and two brothers were removed that day (Saturday) at one o'clock

to the Belvidere Hospital for infectious diseases. On the morning of Sunday, the day following their removal to the hospital, Dr. Knight of the Sanitary Chambers called and informed me that in the hospital a bubo had been discovered in the right groin of Mrs. Malloy and another in the axilla of Patrick. He said that the physicianswere inclined to think that the disease was bubonic plague and he asked my coöperation in detecting similar cases.

I now wish it to be clearly and distinctly noted that during the past three years I have seen typhus fever and small-pox and now bubonic plague within a stone's throw of each other. As for enteric fever, erysipelas, puerperal diphtheria, and especially scarlet fever, measles, and whooping-cough, the district is never free from one or other of these diseases. I speak of five years' experience from morn till night, and sometimes from night till morn, in and out narrow and often filthy entrances, up and down dimly-lit stairs, and through dark and tortuous lobbies into low-roofed, odoriferous, and often pestiferous, single apartments, where you may find six, or even eight, individuals of both sexes eating and sleeping and washing and dressing within the four walls of one room. Why send missionaries and money out of the country when there is such need of it at home as is thus indicated? I have only to add that I found no buboes in these cases, qualifying that statement by saying that I did not specially search for them, nor was my attention directed to them by the patients. It never occurred to my mind—as I am certain it would occur to the mind of no man under the circumstances described and on his first examination—that I had to deal with three cases of bubonic plague.

THE TENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

(FROM OUR SPECIAL CORRESPONDENT.)

THE WORK OF THE SECTIONS.

The Dustbin Problem.

ON Monday, August 13th, the Third Section took into consideration M. Hudelo's report on the removal and treatment of household refuse. In Paris this matter is treated in a more radical and prompt manner than in London. Large dustbins are not allowed. A small portable galvanised metallic box is placed in the yard of each house. The inhabitants bring their refuse, put it into this receptacle, and at night it is placed in the street in front of the house. In the early morning the scavengers come round and empty the contents of these boxes into their carts, but there is an interval during which the *chiffonniers* or rag-pickers may come and take out of these portable dustbins anything which they are capable of utilising. As the street sweepings may also be injurious to health these are likewise removed in the early morning and the streets are washed and swept. The washing is necessary so as to collect and convey to the sewers the small particles of dust which would otherwise remain in the atmosphere. Numerous analyses of the refuse thus collected prove that it contains enough potash, phosphates, and nitrogenous substances to be of value for agriculture, but if so utilised it must be very rapidly removed. It has, therefore, been suggested that the tramway lines extending to distant suburbs might be available for this purpose at night when the ordinary traffic has ceased. Whether tramways or railways are employed the cost of such transit may be greater than the value of the manure. The amount of refuse produced by a large town is much greater than can be utilised in the fields that are not too far off. At present for Paris the three railway companies—the Ouest, the Nord, and the Est—transport refuse to a distance of 100 kilometres at rates which are not prohibitive, but this is not the case with the Paris, Lyon, et Méditerranée Company and the Orléans Company. If the refuse could be sorted and packed in compressed bales then what is useful for agriculture might be sent for the same cost double the distance. It is the space taken, rather than the weight of such refuse, that causes the expense of transit. This raises the question as to whether it is possible to sort and pack such refuse near large towns without creating a nuisance. There is such an establishment at Saint-Ouen-les-Docks which treats some 300 tons of Paris refuse per day. Here the refuse is sorted in a trench which has a double metallic lining (where is the dustyard in or about London which thus protects the subsoil from contamination?) and all corruptible materials are removed by railway-trucks within 24 hours of their arrival. Is this done with equal promptitude in the London dustyards? The rags and paper which the rag-pickers have not carried away are burnt and the "hard core"—galley-pots, tins, &c.—is broken up by a crushing-machine. The weight of the matter which is conveyed by train and used for agriculture is thus reduced 20 per cent. in proportion to its bulk. No nuisance has been created and the health of the workpeople engaged in this industry is satisfactory. The town pays 3½*d.* per ton for the matter removed and this is cheaper than when it does the work itself.

Destructors.

With regard to the use of destructors the results are not always satisfactory. At Copenhagen, at Berlin, and elsewhere it has been necessary to add fuel as otherwise the refuse would not burn. In England the destructors work better because the dustbins contain a large proportion of cinders. In Paris it is estimated that the household refuse amounts to a quarter of a ton per inhabitant per annum and if this could be properly burnt and the heat utilised it would give 2017 horse-power per hour. A lengthy account was given of the various methods of destruction by fire employed in different countries and of the drying process adopted by some towns in America by which the grease is extracted and used for making soap and for other industries. At St. Louis 100 tons of refuse yield £32 worth of manure and £6 8*s.* worth of grease, but this does not cover the working expenses. Altogether the report concluded by recommending the utilisation of refuse for agriculture, where it is possible to convey it immediately to the fields. Otherwise some process of destruction by fire should be employed.

In the discussion which followed it was pointed out that what was thrown away as ashes in England would be looked upon as coal in Holland and that what the Dutch threw away the Germans would still find means of utilising. A destructor that would be workable at Amsterdam would be quite useless at Berlin, for not only were the ashes in the latter town absolutely devoid of any cinders, but there was a great deal of fluff from the cloth industries which would not burn. In the same manner the value of refuse as manure differed greatly according to the occupations and customs of the people from whom it was collected. It was, therefore, impossible to lay down any hard-and-fast principle. Finally, the section resolved to adjourn the whole question to a future Congress.

The Protection of Water Within the Dwelling.

The next report was by M. Lacan, Vice-President of the French Society of Sanitary Architects and Engineers, and by M. Louis Masson, engineer and inspector of the Paris sewers and dwellings. It dealt with domestic sanitation and the connexion of houses with the sewers. Plenty of pure air and pure water were agreed to be the first of necessities. But though at first the water might be pure if the pipes were occasionally empty the air might oxidise the lead and thus poison the water. In the country districts it was well known how easily wells were contaminated. Nevertheless it was easier to protect the water than the atmosphere. The water must not be allowed to come into contact with the air. Even if perfectly pure in the main the connexions with the house were often dangerously defective. The pipe might be either too small or too large for the amount of water it had to deliver, there might be too many bends or angles, or the plumbing of the joints might be carelessly done. All this required careful calculation so that the pipes within the dwelling might deliver the amount of water required without causing a vacuum in the delivery pipe. The size of the taps must be in proportion with their number and the size of the principal pipe within the house, so that the opening of two taps at the same time should not empty the main house pipe and cause air to enter. Of course the water for flushing the closets should not be taken direct from the main but from a disconnecting flushing tank, or "waste preventer," as it is called in England. Naturally the employment of cisterns to store the supply of drinking-water, which are so largely used in London, was absolutely and emphatically condemned. It was impossible to prevent dust and emanations in gaseous form reaching and contaminating such cisterns. As for the use of domestic filters these required so much care and were at best of such doubtful utility that a warning against the dangers they occasion was very necessary.

The Ventilation of Private Dwellings.

In respect to the unsolved problem of the ventilation of private dwellings, the report treated of a phase of the subject which in England is singularly neglected, namely, the porosity of the walls. A house covered with impermeable paint or other similar substance required far more ventilation than was the case where the natural porosity of the walls was preserved. As in winter it was difficult to keep windows open, ventilating shafts should be brought behind the fireplaces so that the outside air might be partially warmed before it was discharged into the room. The only absolutely certain method of ventilation was when mechanical power was employed, and the reporters seemed to think that this could only be applied to large buildings or assembly rooms. But with a little jet of water or a weak electric current the very slight amount of power necessary to move a small fan could be secured and for no very large cost; and such methods could be and are utilised in private dwellings.

Public Sewers.

With regard to house refuse the ideal would be its destruction by fire as rapidly as it is produced. But it was not every house that possessed a sufficiently good oven and fire to burn up at once the dust collected in sweeping and the vegetable and animal refuse from the kitchen. In regard to drainage the report first stated that where cesspools had been abolished and houses placed in connexion with sewers there the death-rate had been greatly reduced. This was quite true, but the reporters were too sweeping in their condemnation of the separate system, of mechanical and pneumatic apparatus, &c. They forgot that where there was no fall some sort of mechanical apparatus must be and was employed to raise the sewage or propel it forward and that where the separate system had been applied there had likewise been a great decrease in the death-rate. In Paris itself immense engines are employed to raise the sewage so that it may flow on to the irrigation plains of Achères, &c. This is machinery, and very costly machinery; and in some towns it has been found more expedient to use a larger number of smaller machines, distributed in different directions. In Berlin there are six such centres; and where pneumatic apparatus is employed, as at Bombay, Rangoon, Southampton, &c., a still greater number are employed and still greater economy is realised. That water carriage, as the reporters argued, is the simplest of methods is undeniable; but where there is no fall the water will not carry, and a fall below a flat surface cannot be artificially created for any considerable distance. Consequently the sewers of Paris, of London, and of many other towns are apt to be clogged with deposits. They are not self-cleansing; scavengers armed with all manner of ingenious apparatus have to be sent down to clear these sewers. It is not drainage by water carriage, but by human labour. If any machinery can effectively replace human labour of such a description it merits careful consideration from all sanitary reformers. As the report deals with domestic drainage and not with public sewers the reporters would have been better advised had they left this latter subject alone instead of going out of their way to condemn systems, theories, and methods which were not under discussion.

Soil-pipes as Sewer Ventilators.

Dealing with the internal arrangements of the house, the principles proclaimed will find very general acceptance. Every tenement should have its own water-closet, for those used in common by several families can never be clean. A vigorous, and as far as possible an instantaneous, flush should be provided. A water-sealed syphon should be placed under every closet-pan, sink, bath waste pipe, &c. The seal of these traps should be two inches deep. The rain as well as the slop-water should drain into the main soil-pipe of the house and the diameter of this pipe should be small. In France it is generally much too large. The soil-pipe should continue to the roof of the house and be left open and, of course, should be absolutely watertight. It should be occasionally tested with smoke or water to see that there is no leakage. The water test is the most reliable.

So far everyone was agreed, but as soon as the reporters approached the subject of the public sewers divergences of opinion became manifest. Indeed, the discussion which followed was in the main devoted to the question now raised — namely, should there be a trap at the bottom of the house soil-pipe so as to disconnect it from the public or street sewer? The reporters were opposed to the use of these disconnecting traps, which were first employed when the sewers were badly built and the sewer airs really dangerous; "but now it is recognised that the hypothesis that the diffusion of epidemical diseases such as typhoid fever, cholera, and diphtheria, by sewer-gas is incompatible with our actual knowledge of the principles that govern the propagation of these maladies." Then, again, we were told that the disconnecting trap prevented the utilisation of the soil-pipes for the ventilation of the sewers and the circulation of air in the soil-pipes. This latter assertion shows a confusion in the authors' minds between what in England is meant by a disconnecting trap or chamber and a mere syphon. The disconnecting trap or chamber should be provided with an air inlet for the ventilation of the soil-pipe of the house. It is best that this inlet should be carried to the top of the house, as then it does not matter whether it acts as an inlet or outlet. In any case the soil-pipe must have two apertures, one consisting of the continuation of the pipe itself to the top of the house and the other communicating with the soil-pipe just before it reaches the syphon that separates it from the sewer. Then there can be no pressure on the traps, even if the pipe should be blocked in any part of its course. Of course it is easy to condemn the disconnecting trap when improperly constructed and this is precisely what was done and what should be done; but no account was taken of cases in which the system was properly and satisfactorily applied. In justice, however, it must be said that the term "disconnecting trap" was only occasionally employed and that the section had but vague ideas as to what this sort of trap might be. The terms more generally used were *siphon terminus* or *siphon de pied*. Of course, a simple syphon at the end or foot of the soil-pipe may very justly be condemned unless and apart from the ordinary outlet an air inlet is added to such a syphon. Then it is that it becomes not a simple syphon or trap but a *disconnecting* trap. A syphon which is affixed to an unventilated pipe does not disconnect, because the water-seal is constantly broken by the pressure or suction frequently occurring in the pipe. Had the report made this distinction clear a great deal of unnecessary discussion would have been avoided.

The experiments made by the British Sanitary Institute were quoted to show that with the ordinary two-gallon flush soil remained in the trap which separated the soil-pipe from the sewer. This, then, was against the principle that all such putrescent matter should be immediately carried away. To flush such traps properly it would be necessary greatly to increase the water-supply. The report therefore urges that these traps should be done away with and that every domestic soil-pipe should become a ventilator of the sewer. The plentiful supply of oxygen thus secured would "burn up the injurious microbes as fast as they are produced." This latter sentence is in flat contradiction with the assertion previously made that sewer air did not propagate epidemical diseases.

Mr. ROECHLIN (Leicester) while agreeing in many respects with the opinions expressed in the report submitted to the section, spoke strongly in favour of the disconnecting trap. Where in the experiments of the British Sanitary Institute the flush had not sufficed to clear the trap it came from a closet in the cellar, that is to say, on nearly the same level. In Paris, where the houses were so lofty, the flush would acquire sufficient velocity to clear out everything from the trap. He had examined houses where an obstruction occurred and this happened not necessarily in the disconnecting trap but in various parts of the systems. M. EMILE TRÉLAT thought that it was a matter of detail of application rather than a question of a general principle. Dr. Vaillant was in favour of suppressing the *siphon de pied*. Pasteur had explained that there were two sorts of fermentation, and that the fermentation which took place in contact with the air was not dangerous. M. DONKOWSKI from Russia argued that if a trap was placed at the bottom of the soil-pipe people would conclude that all that was necessary had been done, and would not take trouble to put traps under the closet-pans and waste-water pipes. If the latter syphons were properly inspected there was no need of a disconnecting trap. Mr. ADOLPHE SMITH protested against the assertion that recent bacteriological discoveries justified the belief that sewer air was not injurious. Even if such emanations from the sewers did not contain pathological bacteria it was quite certain that they predisposed persons to disease. Practically

the result was the same. It had been said, however, that scavengers who worked in the sewers enjoyed good health. Doubtless this was the case, but they were poor men who had for the most part been reared in unhealthy homes, and having survived they might be considered immune. Then they were in the prime of life, they did not work in sewers at a susceptible age, and when in the sewers their bodies were in full activity. The greatest danger was when vitality was at its lowest ebb—namely, during sleep. Now, if the soil-pipes of private houses were to be converted into ventilating shafts for the public sewers, would not sewer air be discharged into bedroom windows? This danger would be especially great where the ground was not absolutely level and houses overlooked each other. The speaker illustrated this by describing how at Maidstone typhoid fever had followed the level of a sewer ventilator. Sewers should be amply ventilated, but in suitable places and not haphazard on the roof of every house, without regard to windows that might be close by and at higher levels. No general rule could be laid down. Here and there a soil-pipe could be utilised as a sewer ventilator, but this could not be applied on all sides whatever the character of the houses and of the ground. Dr. RICHAUD agreed that it was not possible to dogmatise, and Dr. REYNAULD said that if in the small towns of Austria a syphon was placed at the bottom of the soil-pipe there would not be enough air in the sewers and people would neglect to put traps in their houses. The soil-pipe air could be as dangerous as that of the sewer. M. BECHMANN brought the discussion to a conclusion by insisting that the section should strive to indicate what were the results that were to be attained rather than the means to be employed. Thus the use of disconnecting traps might well be left to be decided according to local circumstances. The section might be content with insisting that domestic drains should be so constructed as to be free from odour and to ensure the immediate evacuation of the soil. A resolution to that effect was thereupon carried. It further stipulated that all apertures leading to the soil-pipe should be trapped in such a manner as to prevent the entry of air from the pipe or the sewer into the dwelling. Further, the soil-pipe should be permanently ventilated throughout. Another resolution was carried insisting that special care should be given to improve all plumbing work and that all water-pipes, traps, and soil-pipes should be so placed and built as to be free from the effects of frost. The section then adjourned.

(To be continued.)

ASYLUM REPORTS.

Royal Lunatic Asylum, Montrose (Annual Report for 1899).—Overcrowding had been felt for some time at this asylum and it was decided to build a detached block or villa to relieve the congestion. This has been so far carried out that it was expected that the villa would be ready for occupation by September. The cost of erection was estimated at £7000. As, however, this would provide only for one-half, or the male portion, of the overcrowding at the asylum, the committee are now considering plans for the erection of another house to accommodate the female surplus. The average number of patients resident during the year at the asylum was 659. 75 males and 89 females were admitted during the year, making a total of 164 patients admitted. Of these 138 were new cases and 26 were re-admissions. 126 of the admissions were rate-supported, while 38 were private patients. Dr. John G. Havelock, the medical superintendent, states in his report that intemperance in drink was the cause of insanity in 13 per cent. of the admissions. Hereditary predisposition was the cause in 11 per cent., old age in 10 per cent., and moral causes accounted for another 10 per cent. In 25 per cent. of the admissions no cause could be ascertained. There was a history of previous attacks in 27 per cent. of the cases admitted. In nine cases influenza was the exciting cause of the attack. The number of patients discharged as recovered was 68—i.e., 30 males and 38 females, or 10·3 per cent. of the average number resident. The deaths during the year amounted to 59, or 30 males and 29 females—i.e., 8·9 per cent. of the average number resident. The causes of death were as follows: three deaths were due to epilepsy, three to cerebral hæmorrhage, two to renal disease, five to malignant neoplasms, five to pneumonia, six to senile decay, six to general paralysis of the insane, seven to phthisis and other forms of tuberculosis, and 14 to cardiac disease. Post-mortem examinations were made in only 35 out of the 59 deaths. Several cases of influenza occurred in the institution during the winter months, but the epidemic was less virulent than in previous years. The Commissioners in Lunacy in their reports state that the institution is well managed and that the books and registers are correctly and regularly kept. The farm and garden account showed a surplus during the year of over £275. As authorised by the managers the committee have negotiated a loan of £15,000 in order to meet the balance of expenditure for Carnegie House and Lodge (the parts of the institution for the admission and accommodation of private patients) and for the new villas now in course of erection. Owing to increased annual outlay in recent years the committee propose to raise the rate of board for all pauper patients to £32 per annum in future, which is the minimum rate of board charged by any of the other chartered asylums in Scotland.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6832 births and 4409 deaths were registered during the week ending August 25th. The annual rate of mortality in these towns, which had declined from 20·5 to 19·5 per 1000 in the three preceding weeks, rose again to 19·8 in the week under notice. In London the rate was 19·2 per 1000, while it averaged 20·1 in the 32 provincial towns. The lowest death-rates in these towns were 11·3 in Cardiff, 11·4 in Swansea, 13·2 in Bradford, and 13·5 in Halifax and in Croydon; the highest rates were 25·5 in Salford, 25·9 in Sheffield, 28·6 in Plymouth, 28·5 in Wolverhampton, and 30·7 in Preston. The 4404 deaths in these towns included 1180 which were referred to the principal zymotic diseases, against 1263 and 1061 in the two preceding weeks; of these 863 resulted from diarrhœa, 117 from whooping-cough, 62 from measles, 50 from diphtheria, 44 from "fever" (principally enteric), and 24 from scarlet fever. The lowest death-rates from these diseases were recorded in Bradford, Swansea, Cardiff, and Halifax; and the highest rates in Preston, Wolverhampton, Plymouth, and Hull. The greatest mortality from measles occurred in Gateshead, Leeds, Brighton, and Oldham; from whooping-cough in Gateshead, Nottingham, and Derby; from "fever" in Portsmouth; and from diarrhœa in Leicester, Sheffield, Preston, Wolverhampton, Plymouth, and Hull. The mortality from scarlet fever showed no marked excess in any of the towns. The 50 deaths from diphtheria included 14 in London, seven in Leicester and in Leeds, and three in Sheffield and in Salford. No fatal case of small-pox was registered in the week in any of the 33 large towns and only one case was under treatment in the Metropolitan Asylums Hospitals at the end of the week. The number of scarlet fever patients in these hospitals and in the London Fever Hospital on Saturday, August 25th, was 1726, against 1827, 1838, and 1793 the three preceding weeks; 140 new cases were admitted during the week, against 156, 155, and 177 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 128 to 132 in the two preceding weeks, further rose in the week under notice to 149, but were 12 below the corrected average. The causes of 47, or 1·1 per cent., of the deaths in the 33 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Cardiff, Nottingham, Salford, Bradford, and in nine other smaller towns; the largest proportions of uncertified deaths were registered in Portsmouth, Leicester, and Liverpool.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had declined from 19·0 to 16·9 in the five preceding weeks, rose again to 17·9 per 1000 during the week ending August 25th, and was 1·9 per 1000 less than the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 11·8 in Perth and 16·6 in Leith to 23·3 in Paisley and 24·9 in Greenock. The 554 deaths in these towns included 52 which were referred to diarrhœa, 23 to whooping-cough, nine to measles,

eight to "fever," six to diphtheria, and five to scarlet fever. In all 103 deaths resulted from these principal zymotic diseases, against 107 and 108 in the two preceding weeks. These 103 deaths were equal to an annual rate of 3·3 per 1000, which was 2·0 below the mean rate in the week from the same diseases in the 33 large English towns. The fatal cases of diarrhœa, which had been 60 and 56 in the two preceding weeks, further declined to 52, of which 17 occurred in Glasgow, seven in Paisley, and seven in Greenock. The deaths from whooping-cough, which had been 27 and 18 in the two preceding weeks, rose again to 23, and included 15 in Glasgow, four in Greenock, and three in Dundee. The fatal cases of measles, which had been 11 and 16 in the two preceding weeks, declined in the week under notice to nine, of which four were registered in Glasgow and four in Edinburgh. The deaths from diphtheria numbered six, against none and seven in the two preceding weeks, and included three in Glasgow and two in Greenock. The five cases of scarlet fever, three of which occurred in Glasgow, showed a decrease of one over the number in the preceding week. The deaths from "fever," which had been five in each of the two preceding weeks, rose again to eight, four of which were recorded in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 67, 52, and 59 in the three preceding weeks, rose again to 82, and were greatly in excess of the number in the corresponding period of last year. The causes of 17, or 3 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had declined from 24·0 to 21·2 per 1000 during the three preceding weeks, rose again to 27·0 during the week ending August 25th. During the four weeks ending August 25th the death-rate in the city averaged 23·8 per 1000, the rate during the same period being 19·8 in London and 15·8 in Edinburgh. The 181 deaths belonging to Dublin registered during the week under notice showed an increase of 39 on the number in the preceding week, and included 33 which were referred to the principal zymotic diseases, against 14, 23, and 28 in the three preceding weeks; of these 25 resulted from diarrhœa, five from whooping-cough, three from "fever," and not one from small-pox, measles, scarlet fever, or diphtheria. These 33 deaths were equal to an annual rate of 4·9 per 1000, the zymotic death-rate during the same period being 4·7 in London and 1·7 in Edinburgh. The fatal cases of diarrhœa, which had been 19 and 24 in the two preceding weeks, rose to 25. The five deaths from whooping-cough showed a marked increase, having been one in each of the two preceding weeks. Three cases of "fever," were equal to the number recorded in the preceding week. The 181 deaths in Dublin included 62 of infants under one year of age and 20 of persons aged upwards of 60 years; the deaths of elderly persons showed a decline, while those of infants greatly exceeded the number recorded in the preceding week. Six inquest cases and nine deaths from violence were registered, and 65, or slightly more than one-third, of the deaths occurred in public institutions. The causes of 5, or nearly 3 per cent., of the deaths in the city during the week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: F. J. Burns to the *Tauranga*; C. M. Beadnell and J. E. Coad to the *Scylla*. Surgeons: C. Shepherd to the *Royal Arthur*; C. R. Nicholson to the *Nile*; and R. Waterfield to the *Nymphe*.

ROYAL ARMY MEDICAL CORPS.

Captain D. J. Collins has been appointed for the performance of "specially arduous plague duty" in Poona Cantonment and Suburban Municipality, in addition to his military duties, vice Lieutenant E. F. Gordon Tucker, I.M.S., who has proceeded on service to China. Major W. Turner has embarked for South Africa. Captain H. W. Vaughan-Williams has been placed on half-pay in consequence of ill-health. Lieutenant-Colonel G. F. Poynder has retired on half-pay.

The following is the list of successful candidates for commissions in the Royal Army Medical Corps at the recent examination in London:—

Names in order of merit.	Marks.	Names in order of merit.	Marks.
1. H. J. McGrigor	2779	6. C. D. Myles...	2040
2. W. R. P. Goodwin ...	2612	7. R. N. Hunt	1968
3. J. H. Brunskill	2303	8. H. E. Howley	1916
4. A. C. Duffey	2231	9. R. F. M. Fawcett ...	1855
5. A. W. Gibson	2205		

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant Arthur Young Pringle, 1st Suffolk and Harwich Volunteer Artillery, has been appointed Surgeon-Lieutenant.

INDIA AND THE INDIAN MEDICAL SERVICES.

The services of Captain H. Ainsworth, on plague duty in the Jullunder District, have been placed at the disposal of the Government of India in the Home Department. Lieutenant J. C. H. Leicester has been appointed to the officiating medical charge of the 1st Central India Horse. Lieutenant-Colonel D. P. Warliker has been permitted to return to duty. Captain E. V. Hugo has been appointed to officiate as civil surgeon of Kangra. The following officers have retired from the service: Lieutenant-Colonel C. J. McCartie, Lieutenant-Colonel D. W. D. Comins, and Lieutenant-Colonel J. F. Tuohy. Lieutenant-Colonel J. T. B. Bookey to be Colonel. Captain H. Smith has resumed civil medical charge of the Jullunder district. Lieutenant H. Boulton has assumed charge of the civil medical duties of Bannu. Major J. K. Close, civil surgeon, Moradabad, will hold visiting medical charge of the Budaun district in addition to his own duties during the absence on leave of Major A. R. W. Sedgefield. Captain C. Milne, officiating civil surgeon, is transferred from Jaunpur to Benares as a temporary measure. The services of Major R. J. Marks, officiating civil surgeon, Etawah, are replaced at the disposal of the Government of India, Home Department. The following officers of the Indian Medical Service proceeding to China have arrived in Calcutta: Lieutenant G. McPherson, Lieutenant J. W. Rait, and Lieutenant D. N. Anderson. Major Sykes, Captain Evans, Captain Moncrieff, and Captain Tucker have left Bombay in the hospital ship *Carthage*. The services of Major J. W. Rodgers and Captain E. S. Peck, civil surgeons in the Punjab, have been placed at the disposal of the Government of India for service with the China expedition. Furlough to Europe for one year has been granted to Captain S. A. C. Dallas, civil surgeon, Chanda.

The following candidates for the Indian Medical Service were successful at the competitive examination held in London on August 17th, and following days:—

Place.	Marks.	Place.	Marks.
1. C. W. Melville	3476	8. W. H. Leonard	2786
2. N. S. Wells	3033	9. J. E. G. Swan	2737
3. R. McCarrison	3005	10. R. McL. Dalziel... ...	2548
4. J. Masson	3000	11. A. W. C. Young... ...	2500
5. W. M. Anderson ...	2991	12. J. J. Robb	2430
6. W. D. Pringle	2985	13. S. A. Ruzzak	2425
7. E. H. B. Stanley ...	2870	14. R. B. B. Foster	2385

MILITIA.

4th Battalion Suffolk Regiment: Surgeon-Lieutenant-Colonel F. Fawssett, jun., Militia Medical Staff, retires with permission to retain his rank and to wear the prescribed uniform on retirement.

MILITIA MEDICAL STAFF CORPS.

Mr. George James Devonsher Davies to be Surgeon-Lieutenant. Surgeon-Major W. Waring to be Surgeon-Lieutenant-Colonel. Surgeon-Captain W. M. O'Connor, M.B., to be Surgeon-Major.

YEOMANRY CAVALRY.

Royal Wiltshire: Surgeon-Lieutenant O. C. Maurice to be Surgeon-Captain.

VOLUNTEER CORPS.

Artillery: Surgeon-Lieutenant George Higginson resigns his commission and is appointed Second Lieutenant. *Rifle:* Queen's Rifle Volunteer Brigade (Highland Battalion) Lothian Regiment (Royal Scots): Kenneth MacKinnon Douglas, to be Surgeon-Lieutenant. 2nd Volunteer Battalion Northumberland Fusiliers: Surgeon-Lieutenant A. W. Messer resigns his commission. 2nd Volunteer Battalion Lincolnshire Regiment: Surgeon-Major G. F. England to be Surgeon-Lieutenant-Colonel. 5th Volunteer Battalion South Wales Borderers: Surgeon-Lieutenant C. E. Humphreys to be Surgeon-Captain.

TRANSVAAL WAR NOTES.

The following officers have been discharged from hospital to duty:—Major G. Brazier-Creagh, R.A.M.C., Major D. Bruce, R.A.M.C., Lieutenant M. H. Babington, R.A.M.C., and Lieutenant W. J. P. Adye-Curran, R.A.M.C.

The transport *Templemore* has arrived at Southampton with 10 officers and 390 men sick and wounded from South Africa.

The transport *Orotava*, with sick and wounded from South Africa, has disembarked at Southampton 35 officers and 590 men convalescent for Brockhurst and for Netley Hospital.

Lieutenant-Colonel R. D. Hodson, R.A.M.C., invalided, has left Cape Town for England.

Lieutenant W. H. S. Nickerson, R.A.M.C., was one of those taken prisoner at Klipfontein.

Colonel W. F. Stevenson, R.A.M.C., has been granted the temporary rank of surgeon-general whilst principal medical officer at army head-quarters, South Africa.

The Secretary of State for War has approved of officers on sick leave from South Africa who reside within a mile of any military hospital being allowed free medical attendance from an army medical officer or civil surgeon engaged for duty with the troops.

THE WAR IN CHINA.

We do not think that the gallant attempt which Admiral Seymour made to relieve the legations in Peking has aroused the attention or obtained the credit in this country which it merited. It was full of incidents illustrating the pluck and devotion of the men of the various nationalities taking part in it. The conduct of Admiral Seymour and of his contingent was worthy of the best days of our navy and was highly, as well as generously, appreciated on the part of the officers of the United States' navy, with whom Admiral Seymour's character and ability rank very high. We are glad to notice that the services rendered by the French officers and sailors under singularly critical circumstances, and especially the conduct of the Flag-Captain, de Marolles, were most handsomely recognised, as they well deserved to be, by Admiral Seymour in his letter to Admiral Courrejolles. There is no need to dwell upon the more recent operations in the notable achievement of the relief of Peking by the allied forces; the marches over a single difficult road in sickening hot weather; the stubborn courage and discipline of the troops—especially the Japanese, who fight like Gorkhas—and of the dysentery and disease attributable to bad water, bad food, and fatigue; these things have been fully set forth in the daily press. Peking was captured and the legations were saved in the very nick of time and so far all is even more satisfactory than could have been anticipated a few weeks ago, though the political difficulties have not by any means been cleared away.

As regards the military force from India now operating in China under the command of General Gaselee it will probably have to be augmented, and must in any case be supplied with reinforcements to make up for losses by wastage. The Indian Government have for the present equipped the force with medical officers and hospitals, but the question will shortly arise as to where the requisite number of medical officers can be obtained. The Indian medical establishment is a limited one and the calls on it in India have been very great, and, as everyone knows, show no sign of diminishing.

THE SOUTH AFRICAN HOSPITALS INQUIRY.

Amidst all the *ex-parte* statements that have appeared on one side and the other it is gratifying to notice that there is a decided preponderance of testimony in favour of the good work done by the Army Medical Corps in South Africa. Several of the colonial soldiers on the occasion of their late visit to Windsor Castle spoke very emphatically of their personal experience in this respect and as their testimony was perfectly spontaneous and they knew of what they were talking about it was reliable and valuable. They freely acknowledged that whatever shortcomings there might have been were of a temporary nature and simply unavoidable and attributable to the strain and stress of war. The testimony of soldiers who have passed through the hospitals in South Africa is, after all, the best test that can be applied and it is almost uniformly favourable; and where it is not their criticism is nevertheless usually perfectly fair, temperate, and just. With regard to the overcrowding of army hospitals people seem to forget that this is occasionally unavoidable. A military hospital, unlike a civil one, is bound to take in and provide for sick and wounded soldiers after an action or outbreak of epidemic disease. The *Spectator* of last week contains a very pertinent and well-written remonstrance from Lieutenant-Colonel N. Alcock, a retired officer of the Army Medical Staff, against attacks (with one of which he deals in particular) upon the *personnel* of the Royal Army Medical Corps, who are silently doing their duty in this war often under most trying circumstances. All interested should read this communication.

PASTEUR INSTITUTE FOR INDIA.

The Pasteur Institute has been opened at Kasauli for the treatment of persons bitten by rabid animals. The director of the institute at Kasauli is Major D. Semple, R.A.M.C., who was Assistant Professor of Hygiene at Netley for several years, and has been trained in bacteriology and studied the anti-rabic treatment in Paris. The treatment itself at Kasauli will be entirely gratuitous, but as it does not involve detention in hospital patients will have to make their own arrangements for board and lodging. Excellent accommodation for all classes can be found at this station. Soldiers bitten by rabid animals will no longer require to be sent from India to Paris for treatment. Major Semple has already had eight men of the South Staffordshire Regiment sent for treatment from Subathu, and applications for admission have been made in the case of sepoys and other natives from various parts of the Punjab and the North-West Provinces.

"HEROES ALL."

We have received from the London Stereoscopic Company, 54, Cheapside, London, E.C., a tasteful engraving having the above title and presenting on the central figure a portrait of Field-Marshal Lord Roberts surrounded by ten portraits of generals and colonels serving under him. It has been prepared as a souvenir picture of our generals in South Africa, and the London Stereoscopic Company offers to send, gratis and post free, as many copies of "Heroes All" as may be applied for by the managers of every hospital, sick ward, convalescent home, or other resort where our invalided soldiers and sailors returned from South Africa are being treated, in order that these souvenirs may decorate the walls and interest the invalids. Presentation copies have been graciously accepted by the Queen and several members of the Royal Family.

THE CASUALTIES IN SOUTH AFRICA.

The total losses (exclusive of sick and wounded men now in British hospitals in South Africa) amount to over 40,000 and of these between 5000 and 6000 have died from disease, which is very considerably in excess of the number of deaths returned as killed and wounded. As the *Army and Navy Gazette* points out, however, we have been engaged for some ten months in this war and the losses in killed and wounded amount in round numbers to 10 per cent. of the mean strength of the forces actually landed in the theatre of war. In ten hours' fighting at Gravelotte, to take one instance, the victors lost almost exactly the same numbers out of about half the strength engaged.

ROYAL VICTORIA HOSPITAL, NETLEY.

On August 31st Lord Lansdowne, Secretary of State for War, who was on a visit to Her Majesty at Osborne, paid a visit of inspection to the Royal Victoria Hospital, Netley. Crossing from Cowes in the royal yacht he was received by Lieutenant-Colonel W. E. Webb, the officiating principal medical officer. After going round the hospital he visited the huts and inspected the new railway station and line.

THE MEDICAL OFFICERS ORDERED FOR CHINA.

The medical officers warned by the War Office to prepare for service in China at 48 hours' notice were informed on Saturday last that, for the present at least, their services will not be required.

SWANSEA GENERAL HOSPITAL.—The committee of management of this institution have elected Dr. Henry A. Latimer, J.P., as their chairman.

NAVAL INVALIDS.—The steamship *Palawan* arrived at Plymouth on August 27th and landed 22 naval invalids from the Mediterranean Squadron suffering from Mediterranean or malarial fever. They were conveyed to the Royal Naval Barracks at Stoke.

Correspondence.

"Audi alteram partem."

"THE MEDICAL STAFF AND THE MANAGEMENT OF THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, QUEEN-SQUARE."

To the Editors of THE LANCET.

SIRS,—The following correspondence throws, I think, a helpful sidelight on the controversy as to the management of the National Hospital for the Paralysed and Epileptic and illustrates the sort of tactics that have been resorted to in the long-sustained campaign against the medical staff.

With reference to the special general meeting on August 11th it is now clear:—

1. That it was summoned, notwithstanding the protest of the medical staff, deliberately—perhaps I should say precipitately—for a date when it was impossible for any considerable proportion of the governors or subscribers to attend it or for the medical staff to be represented at it.

2. That its decision was taken on a statement of facts which Mr. G. W. E. Russell has, in the columns of the *Times*, admitted to be incorrect, but which is still being circulated amongst the governors and subscribers by the authority of the board of management.

3. That it was a packed meeting, made up of friends of the board of management specially invited. True, the packing was on a small scale, as only 16 persons took part in the proceedings, but there was packing nevertheless.

I shall be greatly surprised if a properly convened and informed meeting of the governors held at a convenient time does not emphatically reverse the decision arrived at on August 11th. I am, Sirs, yours faithfully,

London, August 31st, 1900. JAMES CRICHTON-BROWNE.

61, Carlisle-place-mansions, Victoria-street, S.W., August 23rd, 1900.

DEAR MR. BURFORD RAWLINGS,—I have received "with the compliments of the board of management" a report of a special meeting of governors and subscribers of the National Hospital held on the 11th of August.

Will you be good enough to inform me why, as a governor, I was not summoned to that meeting and had no notice of it?

I understand that certain governors were invited to attend that meeting and were asked for proxies, and I should be glad to know on what principle a selection of governors to be specially summoned was made.

I shall be obliged if you will send me a copy of the last annual report of the hospital and of the rules and regulations under which it is governed. Believe me, yours faithfully,

R. Burford Rawlings, Esq. JAMES CRICHTON-BROWNE.

National Hospital for the Paralysed and Epileptic, Queen-square, Bloomsbury, August 24th, 1900.

DEAR SIR JAMES CRICHTON-BROWNE,—I beg to acknowledge the receipt of your letter of yesterday.

In reply let me say that no selection of governors to be specially summoned to the general meeting on the 11th inst. was made.

The meeting was summoned in the way provided by the rules—viz., by public advertisement. In addition it was announced in the board's letter to the *Times*, and was mentioned in subsequent communications to that journal.

When the proxies were sent out it was thought to be obviously out of place to solicit the support of the friends of the medical staff. Such an act would have been regarded as an impertinence.

I am sending you a copy of the last report—one was forwarded at the time of issue in May—and I am also sending you, as you wish, a copy of the rules for the constitution of the charity.

Believe me to remain, yours faithfully,

B. BURFORD RAWLINGS.

Sir James Crichton-Browne, F.R.S.

61, Carlisle-place-mansions, Victoria-street, S.W., August 25th, 1900.

DEAR MR. BURFORD RAWLINGS,—I have to thank you for your letter of yesterday's date and for copies of the last annual report and rules of the National Hospital.

I gather from the rules that a single advertisement in any "one public journal" would be an adequate notice of a special general meeting, and I have no doubt, therefore, that the meeting on the 11th inst. was in a technical sense duly summoned, although, as I did not see your advertisement, I had no notice of it. If all the other governors and subscribers are in the same case I have no right to complain, but I have been told that a certain number of governors outside the board of management did receive special notice of the meeting, and your admission that proxies were sent out is tantamount to an acknowledgment that this was so.

Will you explain how you reconcile the issue of proxies with "Rule 6, section, general meetings," which requires that every question shall be decided by a majority of governors present at the meeting? Will you also explain how before issuing your proxies you were able to discriminate in the large body of governors those who were "friends of the medical staff," and to whom it would be "an impertinence to send them," and those who were friends of the board of management and were therefore favoured with them? Most of the governors will, I believe, prefer to be regarded as friends of the National Hospital and will insist on a fair opportunity of giving effect to their views in the controversy which has unhappily arisen.

Believe me, yours faithfully,

R. Burford Rawlings, Esq. JAMES CRICHTON-BROWNE.

National Hospital for the Paralysed and Epileptic, Queen-square, Bloomsbury, August 30th, 1900.

DEAR SIR JAMES CRICHTON-BROWNE,—I am so sorry that my reply to your letter of the 25th has been delayed. Will you accept my apologies for what has been entirely unintentional?

You are correct in your reading of the rules, as to a single advertisement being sufficient for calling a special general meeting. The special meeting to which you refer was, however, the subject of more than one letter in the *Times* newspaper in addition to being called by advertisement in that journal.

In sending out the proxies it was explained that they were for use if a ballot should be demanded. They could not, of course, be used at the meeting when, as you correctly point out, all questions had to be decided by the governors present. Naturally the board did not send proxy papers in support of their policy where it was known they would be unwelcome, and I think you would have had reason to complain if you had been asked to give a proxy in favour of the board and against the staff. It was only in cases like your own when, as I said in my former letter, a request to support the board might have been rightly regarded as an impertinence, that an appeal for such support was not made.

Believe me to remain, yours faithfully,

Sir James Crichton-Browne, F.R.S. B. BURFORD RAWLINGS

"PROFESSIONAL ORGANISATIONS."

To the Editors of THE LANCET.

SIRS,—On behalf of the Great Yarmouth District Committee of the Incorporated Medical Practitioners' Association I am directed to reply to the letter from Dr. James Ryley, published in THE LANCET of August 25th (p. 627), which letter gives an entirely wrong impression as to the attitude taken by the Yarmouth medical men in regard to consultations with the Institute medical officers.

Under ordinary circumstances we certainly do refuse to meet the medical officers of the Institute, because we consider they have behaved in a most unprofessional manner to the rest of the profession, but in any really urgent case we are individually prepared to render them help when called upon to do so. In the case of the genuine working-man club patient who is not even able to pay even low medical fees desiring a consultation we are prepared on dismissal of the Institute officer to take sole charge of the case and to treat the patient gratuitously if necessary. Had Dr. Ryley manifested as great an amount of zeal and interest for local medical organisation as his letter displays for general medical politics by attendance at the meetings of this society which he assisted to form he would not have brought this accusation against his professional brethren, but would have been well aware of the position taken by the society since its commencement, which his letter shows he is not. We further regret this, as we think, unnecessary zeal because at the time of writing his letter to THE LANCET we were in correspondence with him on that very point.

Whilst admitting that "boycotting" is not an ideal method of obtaining our ends we can see no other effective one so long as the General Medical Council, the colleges, and the universities hold aloof from taking any practical interest in matters which vitally concern the well-being of the general practitioner. We are at one with Dr. Ryley in his desire for a "central representative body," and as a society have made efforts (of which he is apparently ignorant) to attain that end, by sending a delegate to the recent Manchester Conference. The statement attributed by Dr. Ryley to the secretary with reference to London consultants is entirely erroneous, no such avowal having been made by him either at the last or any other meeting of the society. Enclosed, for your perusal or for publication, is the correspondence between Dr. Ryley and this society, and we shall be grateful for any comments you may care to make thereon.—I am, Sirs, yours faithfully,

W. E. WYLLYS, Honorary Secretary.

*** We have read the correspondence between the Great Yarmouth District Committee of the Incorporated Medical Practitioners' Association and Dr. James Ryley. It is at present incomplete, for no practical steps are to be taken by the association until a reply is received to its last letter from Dr. Ryley. We do not, therefore, publish the letters, but we may remark that reading them has left the impression on our

mind that Dr. Ryley ought to have no difficulty in remaining a member of the association without any sacrifice of his principles.—ED. L.

To the Editors of THE LANCET.

SIRS,—Dr. Ryley's letter in THE LANCET of August 25th (p. 628) will be read with regret by many members of the profession who have envied the Yarmouth men for the admirable way in which they combined in the day of trouble and have held together since. It is a proof that even the Yarmouth Association has at least one weak-kneed member—a fact which will give considerable satisfaction to the clubs which five years ago treated the local profession in a manner which Dr. Ryley mildly terms "ungracious." If the letter in your last number had simply been an indictment of the methods pursued by the Yarmouth Association I should not have interfered as the Yarmouth men I know are quite capable of defending themselves. But as the letter is an onslaught on the only methods by which any useful organisation can work, I trust you will allow me a little space.

Dr. Ryley's chief objection to his association seems to be that it *did something*. One must at once admit that it is not the usual thing for a medical organisation to act, and Dr. Ryley was probably hurt when he found the association acting instead of merely holding meetings and talking, as is the accepted custom in many such associations. If the Yarmouth Association had relied on talk about the dignity of the profession Dr. Ryley would doubtless have been still an uncomplaining member of the association. He complains that the association boycotted the imported medical men; he objects to its refusal to have dealings with patients so long as they are attended by the institute medical officers; and he protests against influence being brought to bear on consultants in order that they may be induced to back up the association. It would be interesting to hear what in Dr. Ryley's opinion the association should have done. I must confess that these things seem to me not only commendable, but the only things which the Yarmouth medical men could do. It would hardly be worth while forming an association unless something was to be done which could not be done by individuals. Will Dr. Ryley kindly explain? Does he think any good would have been done by simply protesting and then proceeding as if nothing had happened? Would he have the imported practitioners treated in the same way as the ordinary beginner is treated? Does he think that the public—whose opinion he seems to value more than that of his colleagues—would think more of the Yarmouth men if the latter had sat with folded hands after the treatment which Dr. Ryley himself calls ungracious? But after voicing his dissatisfaction with the Yarmouth plan of campaign Dr. Ryley proceeds to question the methods of medical organisations in general. Without in any way meaning to be offensive I must say that here Dr. Ryley falls into the customary professional cant. To my mind there is nothing more sickening than the repetition of the old old phrases by which we try to lead others to think, and to delude ourselves, that we as a profession are animated by motives of pure philanthropy and that the fee is a secondary and rather undignified detail. To listen to this cant—most rampant about Oct. 1st in the neighbourhood of medical schools—one might think that the members of the profession come from a moneyed class whose sole duty and pleasure it is to cultivate the virtues of altruism and charity. It is an offshoot of the same kind of cant which would lead us to believe that we as a profession are above the economic conditions which guide the conduct of other callings. I am as proud of my profession as most men. I know that as men with ordinary human feelings, brought into constant contact with suffering and hardship, we frequently ignore the monetary side of our relations with patients, just as other ordinary men with ordinary feelings would do in similar circumstances. But this kind of thing is a matter for each man to settle for himself as the circumstances arise, and I hold it to be wrong, misleading, and hypocritical to talk, as we too often do, as if the public had a right to expect to find a miracle of altruism in the person of every medical practitioner. This kind of talk has led to much misunderstanding, is pharisaical, and has become a professional cant.

It is a matter of observation that nearly all callings during the last 50 years have felt the necessity for combination. Combine or be exploited is the order of the day. It is equally a matter of common knowledge that those callings which have most thoroughly organised themselves have most improved their status and income. They have done this by the use of "trade union methods" to which Dr. Ryley objects so much when used by medical men. If he will explain what other methods are open to us he will confer a favour on the profession. What are the methods to which Dr. Ryley objects and which he believes are undignified when used by us? I suppose boycotting and the strike are the two most open to exception. As regards boycotting, this is a legitimate and legal method of showing disapproval. It is used on a larger or smaller scale by all callings and classes. Is it not usual for a medical man to refuse to meet or countenance another who conducts himself in an unprofessional manner? And surely what is proper and recognised in the individual cannot be heinous when done by a body. Dr. Ryley pities the public of Yarmouth who cannot have a member of the association unless they first give up the attendance of the institute medical officer, but this is simply carrying out the preliminary protest in a practical way. The effect of the protest would have been *nil* unless followed up in this manner. As for the strike everybody believes that in the case of working men it is sometimes inevitable. The trade unionist knows that it is not a weapon to be carelessly used, but is invaluable as a last resort. Why should medical working men, suffering, as they often do, from the injustice of organised bodies of the public, deprive themselves voluntarily of this weapon? and what substitute does the stickler for the "dignity" of the profession offer?

We must be practical. Individual patients may safely be left to individual practitioners, but when we deal with bodies of the public the situation demands organisation on our part. Experience has shown that disorganised medical men always get beaten by the organised friendly societies, for example. If we agree to organise we must use weapons which have been found useful by similar bodies, or find others. Dr. Ryley does not even suggest the existence of others. To those who find the idea of medical unionism strange and repugnant I would ask the following question. Do you believe that a man will be less skilful, less humane, less charitable, or less of a gentleman because he belongs to an organisation able and willing to protect him in the possession of his rights and privileges? Our professional dignity we can safely leave to look after itself, but one might fairly point out that dignity and strength are not incompatible. We are all in accord with Dr. Ryley's wish for a strong central means of co-ordinating and governing the various local organisations; but we must remember that it is by the formation of such bodies as the Yarmouth Association and the example they have set that the need for such a centre has been driven home to the profession. Even if we had such a body much would perforce be left to the good sense of the local practitioners, and Dr. Ryley would then, as now, be obliged in great measure to rely on the judgment of his colleagues, who have as much to lose and are presumably as jealous as he for the honour of the profession. I am, Sirs, yours faithfully,

Gateshead, August 27th, 1900. ALFRED COX.

"THE CAUSE OF CARIES OF THE TEETH."

To the Editors of THE LANCET.

SIRS,—The Decay of Teeth Committee of the British Medical Association in their report to the council suggest among the causes that by the civilised methods of preparing food thorough mastication is rendered unnecessary and that this limitation of the action of the muscles of the jaw is further shown by atrophy of the jaw, as a consequence of which the teeth become overcrowded. These statements appear to only half meet the case. With bread made from roller-flour additional mastication is really necessary in order to obtain a large supply of saliva to promote digestion and it is quite possible that the low nutritive value of roller-flour is a great factor in atrophy of the jaw. To properly appreciate the difference in the nutritive value of roller-flour as compared with stone-made, it appears necessary to briefly consider the modes of manufacture. In old stone mills the wheat to be ground is fed in through a hole in the upper or running stone, when by reason of the dress or cut put into the surfaces of the stone, assisted by centrifugal force, the wheat becomes pulverised on its way to the periphery or skirt of the stones, whence it passes

through mechanical sifters and dressers and the coarse parts are separated from the flour. By this method all parts of the wheat grain are cut up more or less and the resulting flour contains particles of all parts.

In the modern invention, the roller-mill, the wheat is at first only rolled to smash it in order to separate the kernel from the husk and the germ, and the operation is repeated several times between fluted iron rollers until the object aimed at is obtained, and then the parts of the kernel pass on to be ground between smooth iron rolls. This rolling is succeeded by dressings in cylinders covered with silk, through which the flour made between the smooth rolls passes, and the rollings and dressings are repeated until all the flour is extracted and only the pollard is left. By this method only parts of the kernel are ground up and the resulting flour does not contain any particles of husk or germ. The husk, although very rich in lime salts, is very indigestible. The lime salts contained in the germ are easily assimilated. The germ is the vital part of the grain and acts very like a stomach for the young wheat plant, the diastase it contains converting the starch of the kernel into grape-sugar which helps to nourish the young plant. One part of the diastase contained in the wheat germ will convert a thousand parts of starch into grape-sugar. The starch in the dough must be gelatinised or scalded in order to obtain the full effects of the diastase upon it. The heat at which wheat-starch becomes gelatinised is 150·5° F. Thus when the dough is placed in the oven and the required heat is reached the starch-cells burst and the diastase acts upon it. After the heat of 180° F. has been reached the power of diastase ceases.

Since starch forms about 60 per cent. of wheaten flour the nutritive quality of bread is considerably lowered by removing the germs in roller-milling. It can be easily understood that if we get the dough at a point at which the starch is gelatinised, and at the same time have a certain amount of diastase intermingled with it that will convert a portion of the starch into grape-sugar, we have succeeded in obtaining a bread which will be easily digested. The bread made from flour ground in a roller-mill even if well masticated and swallowed with a good supply of saliva is not so easily digested and assimilated as when the flour is obtained from a stone mill.

As teeth are often the first part of the body to show signs of the effects of malnutrition, the removal of all parts of the wheat-germs from the roller-flour used to make the higher priced bread must have largely helped to cause much dental caries and atrophy of the jaws amongst the rich. The wheat-germs which the roller-miller has removed in making the flour for his higher-class customers are mixed with low-grade flour and made into cheap bread for the poor. The stone-made flour largely used to make the lower-priced bread contain particles of husk and the lime salts and diastase of the wheat-germ, and therefore is well adapted to help in the development of strong jaws and sound teeth. Bread made from roller flour from which the wheat germs have been removed being deficient in nutritive qualities appears to have considerably helped to cause atrophy of the jaw and the resulting defective teeth.—I am, Sirs, yours faithfully,

THOMAS G. READ, D.M.D. Harvard, L.D.S.R.C.S.Eng.
Cavendish-square, W., Sept. 3rd, 1900.

To the Editors of THE LANCET.

SIRS,—With reference to the letter from Mr. A. Berlyn of Cape Town, in THE LANCET of August 25th, in which he states that the natives of South Africa "live on nothing but soft pappy food," and yet carious teeth amongst them are the exception rather than the rule, it would be interesting to know for what period these African natives have subsisted on this soft diet. In the West Indies, where the negroes are all descendants of African slaves, a soft diet also prevails—a diet which has only of recent years been exchanged for a much coarser and harder one—but there the condition of the natives' teeth to-day is almost exactly opposite to that described by Mr. Berlyn.

There are, of course, exceptions, but the rule there is: white-looking teeth, which are freely attacked by caries, often not a sound molar or bicusbid at the age of puberty, and often the incisors broken down by the ravages of decay at a very early age. Suffering from toothache is very common; abscesses, accumulations of tartar, irregularities and malformations, pyorrhœa alveolaris, and indeed every kind of dental disorder can be commonly seen. The Africans who were imported into the West Indies over 62 years ago no doubt had teeth of the character of those described by Mr. Berlyn; what, then, has brought about this marked degeneration in so short a period? If I may be allowed to give an opinion without going into details I should attribute it to the change of diet and mode of living.

I am, Sirs, yours faithfully,
ERNEST STURRIDGE, D.D.S., L.D.S. Eng.
Wimpole-street, W., August 27th, 1900.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of August 25th I notice that Mr. Berlyn of Cape Town would like explained how the fact which he put forward could be reconciled with the theory I advanced and which was so generously supported by Dr. Harry Campbell. Mr. Berlyn says: "The great majority of South African natives live on nothing but soft pappy food, which consists of a very soft porridge made from ground mealies or Indian corn ..... and yet carious teeth among natives are the exception rather than the rule." I should like to point out that this porridge is made of Indian corn which is bruised or crushed, and there is no attempt made to eliminate the coarse and fibrous part such as is done by the elaborate processes which wheat, for example, undergoes in the manufacture of flour. As far, therefore, as this, the staple article of diet, is concerned the Kaffir does *not* eliminate the fibrous part from the natural foodstuff. According to my views such a food is not liable to lodge in the crevices of, and between, the teeth, and the act of masticating it tends to keep the teeth free from fermentable matter. I bruised and crushed some Indian corn first with a hammer and then with pestle and mortar after having soaked it in water for 24 hours so as to try to make it soft. I then boiled it for an hour. On examining I found the more or less powdered part mixed with a fine tough transparent scale which naturally surrounds the corn grains. I then added a little salt and ate the porridge thus prepared. It required a very considerable amount of mastication, much more than does coarse brown bread.

I think, however, Mr. Berlyn is hardly correct in saying that the majority of the natives "live on nothing but soft pappy food," as the following extract from Ratzel's "History of Mankind," vol. ii., p. 433, would indicate. "Thus the Kaffir gets his food about equally from his fields and from his herds. The basis of it is sour milk, *amasi*, and bruised maize, *amabele*, or millet, *umbla*. Meat is eaten alike boiled or roast and is much relished by the natives. According to Gardiner's estimate four or five can manage to eat up a whole ox—entrails, sinews, and all—in a day and a half." The teeth are often much worn from the very considerable amount of mastication which they perform, and, as will be observed from their eating the sinews of an ox, they are not particularly addicted to eliminating the fibrous part from their foodstuffs. These people are very free from dental caries and are an interesting confirmation of the theory that "the cause of the prevalence of dental caries is that the natural foodstuffs [of the civilised] are to a large extent ridded of their accompanying fibrous parts and prepared and consumed in a manner which renders them liable to lodge and undergo acid fermentation in the mouth," &c.

I am, Sirs, yours faithfully,
Kingston-on-Thames, August 28th, 1900. J. SIM WALLACE.

To the Editors of THE LANCET.

SIRS,—If Mr. A. Berlyn's assertion be correct that "the great majority of South African natives live on nothing but soft pappy food," and if it can be shown that they do not habitually chew hard things of any kind, then the view I hold, in common with Dr. J. Sim Wallace, falls to the ground. That, however, these natives do use their muscles of mastication far more than civilised peoples seems to me to be proved by the perfect development of their jaws and muscles of mastication. Nothing is more certain than that if these structures are not adequately used they will not develop properly. I am, Sirs, yours faithfully,
Wimpole-street, W., August 25th, 1900. HARRY CAMPBELL.

"THE COVENTRY DISPENSARY."

To the Editors of THE LANCET.

SIRS,—In the agitation against this institution which has now been raging, at intervals, for eight years a persistent

attempt has been made to obscure the real issue by "drawing a red herring across the path," to wit, the registered friendly societies. In a communication which I drew up for the Council of the British Medical Association during the presidency of Dr. Saundby, just prior to the annual meeting at Edinburgh, I made the following statement regarding these societies: "It is true that some of the outside medical men hold these appointments, but we have never asked the dispensary committee to apply a wage-limit to these selected members, as it was felt that the time was not yet ripe to attack these societies. Moreover, the outside doctors fear to attempt any reform in this direction as the dispensary blocks the way, and, as has repeatedly occurred, it immediately absorbs at a lower rate of payment any society which may be relinquished." I do not wish to retrace further the thread of the argument in this controversy, but merely to emphasise the fact that these societies have always been regarded as distinct combinations, and I have yet to learn that any official censure has been passed on men holding these appointments by the medical press, the medical societies, or the British Medical Association. It is no doubt true that great abuses exist in the terms of their contract with the profession, but being registered by Act of Parliament they present peculiar difficulties, and in the opinion of some the solution of these difficulties involves some knotty points of law. Dr. Saundby asks us to "formulate the reforms we are prepared to accept as satisfactory." Accepting the challenge, we hope soon to give the consultants of Birmingham the opportunity of deciding whether in the future they are prepared to uphold the honour of their profession or the interests of their pocket. In the first place, we must insist on some reasonable wage limit whereby it may become impossible for the rich to monopolise an institution founded to meet the necessities of the poor or the wage-earning section of the community. This must be not only prospective but retrospective—not necessarily to apply to members of registered friendly societies. We insist on the rule being abolished that the medical officers should not hold consultations with anyone outside their staff except those from other towns. We object to the system of touting encouraged by the rule that anyone can join even when ill "if he or she can procure two healthy persons to enter at the same time and pay one year's subscription in advance." We also strongly object to a condition of things whereby the medical profession is exploited for pecuniary gain. This is proved from the fact that surplus funds are not all divided up amongst the profession, but money has been invested on mortgage, and property in addition purchased. We resent the idea of professional men administering medical relief in accordance with the dictates of a lay committee controlling funds collected from the members or left to the institution by philanthropists. The medical men have no control over the disposal of these funds, which may be diverted to any purpose. Their position is somewhat analogous to that of the practitioner who covers an unqualified assistant—i.e., an individual who receives money by virtue of his connexion with a registered practitioner of medicine. We propose to ask the members of the Birmingham Branch of the British Medical Association to refuse these men professional recognition until some reasonable reforms are introduced. If they carry such a resolution the power of this lay committee is paralysed; reforms must then come which will be for the interests of the profession in general and the staff of the institution in particular.

I am, Sirs, yours faithfully,

Coventry, Sept. 3rd, 1900. W. RICHARDSON RICE, M.D. Dub.

To the Editors of THE LANCET.

SIRS,—I am sorry to trouble you again, but Dr. Phillips's letter implies that I did not state the truth when I said that I had not been asked to support the profession in either town against any individuals nor had such a request been brought before any of our medical societies. It is quite true, as Dr. Phillips says, that some years ago he and Mr. Faulder White called upon me about the Coventry Provident Dispensary, but it was to ask my assistance as President of the Council of the British Medical Association and in that capacity I rendered him all the help in my power. It is also true that the matter of the Provident Dispensary was referred by the Council of the British Medical Association to the Ethical Committee of the Birmingham and Midland Counties Branch, but that committee sits apart and does not report its proceedings to the branch. The committee reported back to the Ethical Committee of the Council of the Association and upon that report the Council of the Association passed its condemnatory resolution. The Birmingham consultants have been accused of having failed to render assistance to the medical profession in Coventry and what I have said I now repeat: that the medical profession in Birmingham has never failed to render any assistance asked for by the medical profession in Coventry and that Dr. Phillips's letter is uncandid and unfair, because when he did ask my assistance some years ago, not as a consultant in Birmingham, but as President of the Council of the British Association, I did all in my power to help him, and the Ethical Committee of the Birmingham Branch also when referred to from London did its share of the work. I cannot see that it advances any cause to make charges that are so easily proved to be false and that cause not unnatural irritation in the persons who are the objects of them.

I am, Sirs, yours faithfully,

ROBERT SAUNDBY.

Great Charles-street, Birmingham, August 28th, 1900.

To the Editors of THE LANCET.

SIRS,—In your note following the correspondence *re* "The Coventry Dispensary" you state: "Our aims are to obtain a decrease in hospital abuse and a cessation of the sweating tactics employed in the management of many medical aid associations." Would your, Sirs, lend an ear to one of your readers in Bethnal-green? Here we have a powerful organisation, born and fostered by the Church, which is ruining the incomes of practitioners in the neighbourhood. I refer to the medical missions. In my own sphere tradesmen, mechanics, and men earning good wages accept the aid of the medical mission in lieu of the general practitioner. An attendance at the church is all that is necessary for a visit from the medical man or nurse, and a confinement at 4*s.* 6*d.*, with nourishment thrown in, is a fee with which no respectable practitioner would care to compete.

I am, Sirs, yours faithfully,

PERCIVAL ALLEN.

Bethnal-green-road, London, E., Sept. 3rd, 1900.

TREATMENT OF HÆMORRHAGE BY THE SUBCUTANEOUS INJECTION OF SOLUTION OF GELATIN.

To the Editors of THE LANCET.

SIRS,—I have had occasion to make use of this treatment on three occasions and the success has been striking, as the following reports will show. The method adopted was as follows. A solution was made of 200 grains of sheet gelatin in two pints of distilled water containing 60 grains of "Cerebos" salt. This was clarified with egg albumen, boiled, filtered through cotton wool, made up to two pints, and boiled again for 15 minutes, and then bottled in a sterilised bottle whilst at boiling heat, well corked, and kept for use. At each injection six ounces of this were injected at a temperature of 103° F. into the cellular tissue of the buttock, with the usual precautions as to asepsis, such as boiling the syringe and using collodion to the puncture. In Case 3 alone did any inconvenience result to the patient from the injection, but neither induration nor pain at the site of injection nor any constitutional disturbance were noticed in the others.

CASE 1. *Hæmoptysis.*—A married woman, aged 72 years, was greatly depressed subsequently to the shock induced by the sudden death of her husband a fortnight previously. On July 1st she developed gout of the right foot, with heat, redness, swelling, and pain over the dorsum. She was treated with 15 grains each of guaiacum powder, potassium bitartrate, and precipitated sulphur every night, and a dietary of good light food, as fish and broths, with plenty of fresh lemonade and fruit. The gout disappeared, but on July 4th she developed some œdema over the front of the chest wall, including an area as large as a dessert plate starting from the lower part of the sternum as a centre. At the same time great irritation of the fauces caused an ever-recurring dry cough which prevented sleep. The fauces and larynx were examined with negative results except that the left side of the pharynx was occupied by a distinct pulsation and this, after examination, was attributed to anatomical variation of the internal carotid; the œdema of the chest was thought to be due to depression

partly consequent on shock, gout treatment, and sleeplessness. From the 4th to the 14th she remained in bed with frequent change of position. She was to have got up on the 15th. On the morning of the 15th she had an attack of hæmoptysis at 5 A.M. and brought up two and a half ounces of frothy bright blood having an alkaline reaction. This was apparently attributable to the coughing having caused a rupture of some atheromatous vessel. The usual treatment by solution of chloride of calcium, hazeline and hydrastis by the mouth, and hypodermic injection of ergotinin, with an ice-bag on the upper part of the left chest, was adopted. The hæmoptysis recurred six times on the 15th, from the 15th to the 16th four times, and on the morning of the 17th it recurred every 15 minutes; on each occasion one ounce was brought up. Hæmorrhage was evidently continuously going on and when it had accumulated to the extent of an ounce caused irritation and was coughed up. At 10 A.M. on the 17th, during hæmoptysis, the gelatin was injected. The hæmoptysis ceased and did not recur and the patient made an uneventful recovery and is now at the seaside doing well and has not had any further trouble.

CASE 2. *Post partum flooding.*—A multipara, aged 27 years, was delivered at full term of a fœtus and placenta on July 21st. At the time of delivery she was alone, although I was but 10 minutes in reaching her house after being called at 5.20 A.M. The uterus was distended to three inches above the umbilicus with fluid blood and she was still losing. I at once emptied the uterus and with a flushing curette with water at 115° F. the whole surface of the uterus was passed over; a large rent in the perineum was brought together with four deep sutures. As the hæmorrhage continued a hypodermic injection of ergotin and strychnine was given, the uterus was well contracted, and the pulse was fairly good and about 90°. Dr. R. R. Law, of Sidcup, now came to my help, and took charge of the uterus during my absence; in half an hour the gelatin solution, &c., was ready; the patient was still losing freely, her lips were blue, she was exsanguine and restless, and the pulse was thready. The gelatin was injected into the right buttock and the hæmorrhage ceased at once and did not recur.

CASE 3.—The patient, a woman, aged 57 years, 5-para, had suffered from prolapse for some 20 years. During the last year she had suffered from very grave periodical losses due to fungous endometritis, which was in its turn due to the chronic uterine congestion dependent on the prolapse. The uterus was curretted with a view to diagnosis. The hæmorrhage was treated by the usual medicaments and by packing the uterus with ribbon iodoform gauze and vaginal tampons soaked in liquor hamamelidis. The metrorrhagia became more profuse with each attack, recurring every five to seven weeks, and I finally advised vaginal hysterectomy. I did not treat the patient at her last metrorrhagic loss; she consulted another medical man who made weekly applications of nitric acid and in the intervals used the "coton styptique." During the entire month the hæmorrhage continued and after the last application it was more free than before. The patient was advised to undergo vaginal hysterectomy and was sent back to me. She was seen on August 15th, 1900, and had been losing every day as described. I injected five ounces of 1·5 per cent. solution of gelatin into the buttock and this caused much pain and faintness, the temperature went up to 101·4° F. that evening and the pains prevented sleep during that night. From August 16th onwards the patient has been carried into the garden each day, and until now she has not had a trace of hæmorrhage. Every day she is visibly recovering her usual tone and health in a way that will assist her in bearing the shock of the projected hysterectomy.

The difficulty of having this remedy at hand is best met by making a concentrated solution of 200 grains of gelatin in a quarter of a pint of distilled water and one ounce of salt, putting it up in half-ounce bottles, each of which when diluted, re-sterilised, and filtered makes a five-ounce injection, enough for one dose.

This remedy is more or less empirical, but it is easy to assume that hæmorrhage in each of the above cases was due to some deficiency in the blood, induced by debilitating strain of various kinds removing from the blood some substance essential to coagulability, and that the gelatin injection, quickly absorbed, presented the foundation or deputy fibrinogen rendering coagulation once again possible. It should be remembered that the inducement of coagulation is so positive a property of this treatment that it would appear that there is real danger of inducing thrombosis in the event of too strong a solution or too large a dose.

I am, Sirs, yours faithfully,

G. W. DAVIS, M.D., B.S. Durh., L.R.C.P. Lond., M.R.C.S. Eng.

Sidcup, Kent, August 22nd, 1900.

DUOTAL IN OSTEO-ARTHRITIS.

To the Editors of THE LANCET.

SIRS,—During the last nine months I have been prescribing duotal (carbonate of guaiacol) in cases of both acute and chronic osteo-arthritis with markedly good results. Duotal is a white powder, tasteless, odourless, is said to be non-poisonous, is insoluble in water, and therefore is best prescribed in capsules or wafers. It does not interfere with the digestive functions and is split up in the intestines into carbonic acid and guaiacol. There the latter becomes absorbed into the system and can afterwards be traced in the urine. It produces no depression, is free from the disagreeable irritative effects of guaiacol, and it seems to stimulate the appetite and facilitate assimilation. As to the dose, it is better to begin with the minimum and gradually increase to the maximum. I usually commence by ordering five grains every four hours or three times daily, according as the disease is acute or chronic. On the second or third day I increase the dose to 10 grains, and after the first week I give from 15 to 20 grains three times daily. In the acute form of the disease it relieves pain, reduces the temperature, and diminishes the swelling of the joints, but in the chronic affection, although it relieves pain and stiffness, I cannot say that it effects any diminution of the bony enlargements. I have thought, however, that in some cases in which I have prescribed it for a few weeks it seems to bring the progress of the malady to a standstill, at least for a time. In those incipient cases of the chronic form of the disease which exhibit peripheral nerve-pains its effect in relieving pain is very noteworthy. I have found that this is lessened in from 24 to 48 hours, and in most patients has entirely disappeared in the course of a week. When the early signs are those of stiffness of the neck together with tenderness over the spines of the cervical vertebræ or of stiffness of the jaw its effects are equally good. It is most useful also in those cases of the chronic malady in which the early symptoms are pains in various parts of the body, some referred to the joints and some to the muscles, such as the inner side of the wrist or the ball of the thumb, numbness and tingling of the extremities, and some stiffness of the joints on movement. In these cases I have found that five or 10 grains of duotal taken three times a day for 10 days or a fortnight relieve these symptoms. Now, as it is these early cases of the disease that one may reasonably hope to cope with it is very important, after having obtained favourable results from the action of duotal, to improve the general health by other well-known drugs and to lay down the strictest injunctions as to diet and hygienic measures, and where possible to order a yearly trip to Aix-les-Bains for a few years; for it is an undoubted fact that many cases of osteo-arthritis, not only those exhibiting early manifestations of the affection but also much more advanced cases, maintain their ground for years under suitable treatment.

In prescribing duotal in the acute form of osteo-arthritis I have been careful to differentiate it from allied diseases. From acute or even sub-acute rheumatism this differentiation can generally be effected by noting the principal points which distinguish it from the latter disease; positively, by the fact that the articular swellings (of the larger joints at least) are more circumscribed, by the special susceptibility of the smaller peripheral joints to become involved, and by the progressive character and great obstinacy of the symptoms; negatively, by the absence of tonsillitis, of cardiac lesions, and of profuse acid sweats. From an acute attack of gout it may be separated by the length of the paroxysm, by the want of periodicity, and oftentimes by the large and small joints being indiscriminately invaded in its development, and by there being no particular susceptibility to the invasion of the metatarso-phalangeal joint of the great toe, although it must not be forgotten that these joints are also frequently involved in osteo-arthritis.

The following cases will serve to illustrate the exhibition of the drug:—

CASE 1.—The patient was a married lady, aged 38 years,

she had one child, aged 16 years, a male. Her mother was dead and was said to have been tuberculous. Her father suffered from gout; she had one brother and sister, who were believed to be quite healthy. The patient was anæmic, otherwise she was well nourished; her complexion was fair. The present illness commenced on Jan. 9th, 1900, with slight feverishness and tenderness in both wrists. In a few days other joints became painful, tender, and swollen; first the ankles, then the fingers and elbows. From Jan. 11th to the 14th the temperature curve varied from 101° to 102° F., morning and evening respectively. On the 13th five grains of duotal were ordered every four hours. On the 15th the morning temperature was 100° and the evening temperature was 100·4°. On the 16th the dose of duotal was increased to eight grains, and the temperature on the 17th was 99° in the morning and 99·6° in the evening. The temperature now varied little till the 19th when after 10-grain doses of the drug it became normal in the morning and 99° in the evening. On the 21st the temperature was normal morning and evening, and it did not again rise. By this date also the pain and tenderness had nearly disappeared, but there was still some swelling of the joints, especially those of the hands, and stiffness was complained of in all the affected joints. This swelling and stiffness continued in a smaller degree in all the joints for another two weeks, during which time the patient was taking 10 grains of duotal three times a day. After this the stiffness and swelling became daily much less marked and the drug was discontinued after having been taken for four weeks. Treatment to improve the general health was now adopted and the patient was advised to go to Aix-les-Bains at the end of May.

In Case 2, where an acute attack occurred in a patient who had been suffering from well-marked chronic manifestations of the disease in both hands, I found the drug very valuable. In this patient, a female, single, aged 49 years, anæmic, who had a dark complexion and was a hard worker, the temperature varied between 100° and 101·2° F. The knees and shoulders were very painful with little or no swelling, but the hands became swollen and painful, and stiffness was much complained of. I commenced with five grains of duotal every four hours. The following morning the temperature was 99° and the pain was less. I now ordered 10 grains three times a day for the next eight days. The temperature became normal and the pain and stiffness became less in two days. At the end of eight days the patient had lost all pain and stiffness in the shoulders and knees, and the hands were apparently in the same state as before the acute attack supervened. She continued the drug for another week and then found that she could use her hands with more ease and comfort.

CASE 3.—The patient was a man, aged 58 years, a postman; he was anæmic and had a dark complexion. He had been suffering for some years from the fully developed affection in its most chronic form. The malady was especially marked in the hands, where the well-known flexions were very typical. He complained much of the hip and knee joints, and had great difficulty in walking. I prescribed seven grains of duotal three times a day for two days and then increased the dose to 10 grains for a fortnight. At the expiration of this time there was an improvement, as he could walk with less difficulty. For another fortnight he continued the same dose of the drug and could then walk fairly comfortably, but there was much stiffness in all his affected joints after a night's rest. I now gave him 15 grains three times a day for a week and then found he had comparatively little difficulty in getting about, and he has maintained his ground for some months.

I am, Sirs, yours faithfully,

W. H. RUSSELL FORSBROOK, M.D. Lond.

Buckingham Palace-road, S.W., August 20th, 1900.

"THE PROTECTION OF PARTURIENT WOMEN AND NEWLY-BORN CHILDREN."

To the Editors of THE LANCET.

SIRS,—The Manchester Medical Guild are to be congratulated upon the attitude towards the midwives question which, at the instigation of Mr. G. H. Broadbent (*vide* THE LANCET of August 18th, p. 560), they have taken up; for, little as we may like grandmotherly legislation, this scheme is based upon the sound principle that every parturient woman should have fully qualified medical attendance in her labour. And it constitutes a definite policy in opposition to the registration of midwives, which mere blank negation did not. In response to Mr. Broadbent's invitation I would suggest the omission of the "public obstetricians" from the scheme. To the public their appointment will appear cumbrous and unnecessary since the Poor-law medical officers are already appointed to attend to this very thing; the patients will, as now, shrink from engaging an arbitrarily appointed State-paid officer; and thirdly, the functions of the public vaccinators under the new Act have caused so much friction that the profession will strongly deprecate the appointment of officers whose functions would interfere even more with private practice. The alternative I suggest is that a parturient woman whose claim for State (or rate) aid is made good should be free to engage whichever local practitioner, being registered, she may induce to attend her for the fee guaranteed by the State or the board of guardians. It is of the greatest importance that a patient should choose his or her own medical attendant. That is why we are registered.

I am, Sirs, yours faithfully,

Plaistow, E., August 22nd, 1900. P. NAPIER JONES.

PLASMON.

To the Editors of THE LANCET.

SIRS,—In a short report, or rather notice, of a paper read by me at the British Medical Association at Ipswich which was published in THE LANCET of August 18th (p. 515), I was quoted as having said that the preparation of plasmon was a costly one. This is a reporter's error. One of the great advantages of plasmon is that both the material from which it is made and the process of manufacture are exceedingly cheap.—I am, Sirs, yours faithfully,

London, August 30th, 1900. F. W. TUNNICLIFFE.

"A RIDE FROM LONDON TO EDINBURGH AND BACK ON A TRICYCLE BY A VEGETARIAN IN HIS SEVENTY-EIGHTH YEAR."

To the Editors of THE LANCET.

SIRS,—As an addendum to my letter in THE LANCET of August 25th (p. 629) the following particulars may be of interest. I did not eat any flesh food in any shape nor did I even eat eggs. Neither did I touch wine, beer, spirits, or tobacco. I ate whole-meal bread and biscuits when I could get them and a little cheese, but not much. During the first 15 days I never sat down to a table for dinner. I ate my food riding or on a bank by the roadside—some bread-and-cheese with a tomato or banana or both, or some bread and a bit of chocolate. Now and then I got a glass of milk, but I think I felt better without it. On only about 10 of the 31 days did I have any vegetables and only on about seven days a little pudding with or without fruit. My breakfast was mostly weak tea or cocoa-and-milk with bread-and-butter and marmalade or jam. My evening meal was mostly cocoa-and-milk with bread-and-butter and sometimes marmalade. On two or three occasions I had some porridge and once some bread-and-milk. I did not eat at stated times but would munch (my teeth have all disappeared) some bread or biscuit with some sweets or chocolate as I rode along. I did not drink a great deal as a rule during the day, and I have ridden all day without wiping my face, so free was I from sweating, but I drank water sometimes pretty freely in the night. I always took a jug of boiled water to my bedroom and frequently, after my first sleep of about four hours—after which I generally felt quite refreshed—I would munch some biscuit and perhaps some chocolate and drink water as I felt to need it. Then, after reading and thinking for a time I would have another sleep. I did not have any aches or pains nor any signs of distress during the whole time I was away.

My object in taking this ride was to satisfy myself by personal experience that good health and a full measure of vigour can be maintained under total abstinence from flesh, alcohol, and tobacco, and that, too, with such an amount of exercise as was requisite for a considerable effort. The lesson derivable from my experience seems to be that if we fed ourselves more thriftily and lived on simpler food we should enjoy our lives more completely and retain our activity for a longer period.

I am, Sirs, yours faithfully,

C. J. HARRIS, M.R.C.S. Eng., &c.

Kilburn Priory, N.W., Sept. 1st, 1900.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Increase of Plague.—Inoculation against Plague.—The Pasteur Institute for India.—Health of Bombay City.—Birth-rate in the Punjaub.—Malaria and Water-supply.

PLAGUE has reappeared at Belgaum, Poona, and Mysore. The plague deaths for the whole of India show a rise, Calcutta reporting 89, Mysore 67, Bombay city 58, Bombay district 45, Bengal districts 23, and Madras province three, making a total of 285. Private information is to the effect that plague is much more prevalent at some of these places than is reported. The continuance of plague in Calcutta with from 50 to 100 deaths every week is very serious. The general mortality of this city is 7 per 1000 per annum above the normal and the excess is not entirely accounted for by the plague. In the absence of any other explanation it is probable that there are more plague deaths than come to the notice of the authorities. The returns for the city of Bombay are extraordinary. For the week ending August 7th there were 1499 deaths, or 834 more than the average for the corresponding period of the preceding five years, the rate of mortality being 92·07 per 1000. There were 354 deaths from cholera and the number of deaths attributed to plague, as mentioned above, seems too small to be correct. For the month of July there were 3147 more deaths than during July of last year. Cholera exists not only in Bombay but in Madura and in the city of Nagur. Owing to plague existing at Hong-Kong all officers, men, and camp-followers proceeding to China have had the option of being inoculated with Haffkine's fluid before leaving their stations.

The Pasteur Institute at Kasauli was opened on August 9th, and 31 persons are now under treatment—namely, one British officer, 16 British soldiers, six sepoys, and eight other natives. The director is Major Semple, R.A.M.C., who was assistant professor of hygiene at Netley, and who visited Paris for the special purpose of studying the anti-rabic treatment. It is hoped that local organisations will arrange to pay the necessary expenses for the poor. The treatment will be entirely gratuitous, but as no hospital accommodation is required patients will have to make their own arrangements for board and lodging. Excellent accommodation for all classes is said to be procurable in Kasauli. It is understood that the Government of India will pay to the institution about Rs. 800 per month for the next three years. The institution also possesses Rs. 75,000 in Government notes, producing about Rs. 220 per month. The income, however, is not sufficient to meet all the expenses, so it is hoped that the public also will subscribe. Before it was opened the Government used to send European patients a three weeks' journey to Paris. The credit of its establishment rests largely with Surgeon-General Taylor, who took up the matter with great spirit in the interests of the British soldier. The anti-vivisectionists are now indulging in declamatory opposition to it. They assembled at Delhi and condemned the institution as being "repugnant to the feelings and sentiments and to the tenets of every religion" in the country. They also appealed to the Viceroy to withdraw Government patronage from the institution and to prohibit vivisectional experiments either for the manufacture of "Pasteurian serum" or for any bacteriological purpose.

The quarterly report of the health officer of the city of Bombay refers to the large influx of destitute people from the country districts. The death-rate has been 151·5 per 1000 per annum. Dr. Weir complains of the unauthorised terms "Bombay fever" and typho-remittent fever," which are probably forms either of typhoid fever, Malta fever, or relapsing fever. He says that the water-supply "although impure from vegetable *débris* gave better results bacteriologically than was expected. The colonies were somewhat in excess, but pathogenic organisms were absent." The birth-rate was low, but the increase in the number of births points to an increased population. The proportion of males to females by the last census was as 170·6 to 100.

The extraordinary increase in the number of births in the Punjaub for 1899 beats all records. The increase amounted to 152,132, and the birth-rate reached 43·4 per 1000. The death-rate at the same time was 29·57. In the Jullunder, Ludhiana, and Amritsar districts there was an excess of deaths among females under one year old, a fact which raises a strong suspicion of the continued practice of female infanticide. For the suppression of this crime it is proposed to substitute medical supervision for police agency as an experimental measure in certain villages of the Jullunder district.

An inquiry has been held regarding the health of the riparian municipalities to the north of Calcutta and to the east of the river Hooghly, and the report was published not long ago. In his investigations Captain Rogers, I.M.S., had the subject of malaria particularly in view. To test for the amount of malaria a certain number of people, including children, were examined for enlarged spleens on the ground that "the percentage of a population who suffer from enlargement of this organ may be safely taken as the best practical indication of the degree to which the inhabitants are affected by this scourge of Lower Bengal." Precautions were taken to obtain a fair average of the various populations, and about half the persons examined were children. The enlarged-spleen rate was found to vary considerably. In order to explain these differences inquiries were instituted into the waterlogging of the soil, the water-level, the rainfall, and the water-supply. The enlarged-spleen rate was found to be much lower in places situated on the east bank of the Hooghly to the north of Calcutta than in those further to the east. In the more eastern areas the enlarged-spleen rate was 50 per cent., which is considered as approximately the normal figure for that part of the country. An exception, however, was found to exist in an extremely low-lying and waterlogged area which nevertheless had a comparatively small spleen rate. This area was constituted by the municipality of Maniktola, which had a good filtered water-supply. Again, it was found that Cossipore-Chitpur, which had the lowest rate of all, had the double advantage of a filtered water-supply and a situation on the east bank of the Hooghly. Captain Rogers concluded that as certain places equally waterlogged differed in the amount of their malarial infection there must be some other factor to account for the difference and that this was certainly not the absence of the malarial mosquito, because in the least affected area the anopheles were found more widespread than in any other part. The only possible factor he could find was the water-supply, for the two municipalities where the enlarged-spleen rate was low, although the soil was waterlogged and the anopheles abundant, were the only ones which had a filtered water-supply from the source as Calcutta itself. Among drinkers of river water the enlarged-spleen rate is nearly double, and among drinkers of tank water it is nearly treble that which is found among drinkers of filtered water.

August 16th.

PLAGUE IN AUSTRALIA.

(FROM A SPECIAL CORRESPONDENT.)

THE returns of plague in Sydney for the week ending July 21st are as follows: remaining at the beginning of the week, 51; admitted, two; discharged, four; died, none; remaining at the end of the week, 49. The totals up to the end of the week are as follows: cases, 302; deaths, 101; recoveries, 152; "contacts" isolated, 1702; "contacts" remaining, 26; cases among "contacts," seven. The above figures include Chinese, of whom 10 were admitted with eight deaths, all the other patients being whites.

The returns of plague in Sydney for the week ending July 28th are as follows: remaining at the beginning of the week, 49; admitted, none; discharged, 14; died, one; remaining at the end of the week, 34.

The death was that of a patient admitted as far back as April 27th and was only indirectly due to plague. No case has occurred since July 17th. It seems that the epidemic is now over for this time, and, great and embarrassing as popular excitement was during the earlier three or four months, the complete cessation of public interest and alarm may be judged of from the fact that during last week a charitable fête was successfully held in the grounds of a mansion from which a case of plague was removed not more than six weeks ago. The committee had not even thought it worth while to inquire whether this proceeding was free from danger.

Clean bills of health are now issued endorsed with the late and scattered cases which have occurred since the 10 days' interval. The latest of the two recorded above was isolated on July 17th.

July 30th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Precautions against the Plague.

AT the meeting of the Manchester Port Sanitary Authority held yesterday in the town-hall Dr. J. H. Crocker, the medical officer, presented a report dealing with the outbreak of plague in Glasgow and the measures adopted for preventing its introduction to Manchester. In July a medical inspector from the Local Government Board visited the port and approved of the measures then in use, but since his visit further precautions have been taken. An additional inspector is now at Eastham and inquiries are made of every ship which enters the canal. If a case of sickness is reported a telephonic message is sent to the medical officer and a medical inspection is made before the ship goes into dock. The other inspector visits the ships within the port, inquiring as to any sickness, inspects the vessels as to sanitary conditions, and sends daily reports to the medical officer, who also makes frequent visits of inspection. All the vessels from Glasgow are boarded at Mode Wheel and inquiries made as to any sickness. The names and addresses of all who leave the ships while in port are taken and filed for reference. Foreign vessels bound for Manchester are boarded by the Customs officers at Liverpool and if any cases of sickness are reported the chief officer of the Liverpool Port Sanitary Authority is communicated with. If the disease turns out to be plague, cholera, yellow fever, or small-pox the case is removed at Liverpool. If a case of plague is known to be on any foreign vessel bound for Manchester a medical inspection of all on board would take place. And if a vessel should reach Manchester with a case of plague on board the port medical officer would have power to remain on board and to order her return to Liverpool, where she and all on board would be handed over to the Liverpool medical officer. This power arose from the fact that when the order of the authority was made it was found that Manchester was not suitable for a quarantine station, which therefore was placed at Liverpool. If necessary an additional medical officer to assist Dr. Crocker temporarily may be appointed, for, as the chairman said, he "could not be engaged night and day." These arrangements seem well calculated to protect Manchester from attacks by sea, but no provision has yet been made against the possible introduction of plague in any other way. As one of the local papers says, the infection causing the terrible outbreak of plague at the village of Eyam, in Derbyshire, in 1666—still kept in lively remembrance—was found to have been brought in a bale of cloth sent from London. However, the people here need not feel any apprehension, for it may be considered quite certain that ceaseless vigilance is exercised and that if a case should arise all possible precautions will be taken to prevent the spread of the disease.

Manchester Sewage Schemes.

At the meeting of the Manchester City Council to be held to-morrow an important question is to be discussed and possibly decided on—namely, whether the sewage scheme recommended by the experts shall be adopted or that enjoined by the Local Government Board. The former is estimated to cost £337,713 and the latter £487,283. Each is based on preliminary sedimentation and anaerobic bacterial action in tanks, followed by aerobic treatment in contact beds. The difference results from the requirements of the Board as to the extent of the contact beds and in its insistance on the provision of 213 acres of land at Carrington and Flixton, necessitating the construction of a conduit. The scheme of the Board might be proceeded with at once, while the other would involve delay and the need for Parliamentary sanction. The scheme of the Board, though more costly to begin with, would leave some room for extension and there is no likelihood that Manchester will cease to grow for some time to come.

"Faith Cures" at Oldham.

It is not always quite clear whether "faith" or disbelief in "doctors" is the motive power influencing such people as the poor woman whose death was the subject of a coroner's inquest at Oldham on August 30th. The husband in his evidence said that his wife complained of feeling unwell on the Saturday but refused medical attendance as she was a "member of the Berachah Mission," whatever that may be, "and they did not believe in doctors." She was found dead in bed on the Wednesday. Her husband went on to say that his sect "believe that faith will cure them. ..... They reckon that the Lord will heal their wounds without a doctor being in attendance." As a rule the working-class people of Oldham are shrewd and sensible according to their lights, but they may be pronounced somewhat short of general culture and a prey to divers fancies and superstitions. The verdict was "Death from natural causes."

Anthrax in Cheshire.

Anthrax has broken out at a farm at Cuddington, near Northwich, and the sale of milk has been stopped. At the meeting of the Northwich Rural District Council on August 30th a question was asked as to how it was that the council had been notified in the matter when they had no power to deal with it. Mr. H. E. Gough, the medical officer of health, said: "We have a voice in the distribution of milk." The Agricultural Board deal with the matter and the chief constable is responsible. There seemed a disposition on the part of some members to demur to the stoppage of the whole of the milk from a farm because a single cow had the disease and had been killed, but Mr. Gough said it was laid down that no milk was to be sold until the veterinary surgeon was satisfied that there was no danger of infection.

Sept. 4th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Plague in Foreign Ports: Sanitary Precautions in Liverpool.

THE medical officer of health has officially notified medical men throughout the city that, owing to the presence of plague in foreign ports, a careful inspection of vessels from suspected ports is now taking place. He emphasises the fact that infected persons apparently in health on arrival may develop illness after landing. It is, therefore, desirable that special attention should be paid to seafaring persons coming under notice in early stages of illness. It will be remembered that a short time ago an inspector from the Local Government Board visited the port of Liverpool in regard to the precautions taken against the plague, and he expressed his approval of the existing arrangements. Needless to say the damage to the commerce of Liverpool, should an epidemic of plague gain ground, would be considerable.

Asylum Accommodation in Lancashire.

The difficulty of providing accommodation for lunatics in the Lancashire asylums is gradually disappearing. From the proceedings of the recent quarterly meeting of the Lancashire Asylums Board, it would appear that the new asylum at Winwick is approaching completion, as the board are about to appoint a medical superintendent at a salary of £600 a year, with furnished house and allowances. A committee has also been appointed to look for a site for another asylum. In fact, the board are doing their utmost to provide increased accommodation. The chairman intimated to a deputation from the Bolton board of guardians, who attended to ask the board to consider what could be done for that union in the matter of increased asylum accommodation, that they had an immense number of patients that ought never to have come to their asylums, owing to the action of the Local Government Board. The Asylums Board have also provided additional accommodation for 200 patients at Rainhill and for a similar number at Whittingham. It is a pleasing fact to find the services of the medical superintendents of the asylums appreciated, a resolution "that good service pay carrying no pension may be awarded to the medical superintendents of an asylum after 21 years' service" being carried by a large majority.

Extension of the Hospital for Women, Shaw-street.

Nearly £800 have been promised towards the cost of carrying out the alterations consequent upon the proposed extension of the Hospital for Women, Shaw-street. Five gentlemen head the list of subscriptions with £100 each.

Medical Faculty, University College, Liverpool.

The winter session of the medical faculty will begin on Oct. 1st. The distribution of medals, prizes, and certificates

for the previous session, and the opening address to the students by the Lord Bishop of Liverpool, will take place in the Arts Theatre of University College on Saturday, Oct. 13th, at 4 P.M. The medical faculty will hold their biennial dinner on the same evening at the Exchange Station Hotel.

Donations to Liverpool Charities.

The annual cyclists and harriers' parade, held in June last, has shown an increase of £200 over the amount collected in the previous year. The amount available for distribution among the hospitals was £720, the Stanley Hospital receiving £100, owing to special needs.

Sanitary Inspectors' Association.

A meeting of the members of the North-Western district centre of the National Union of Sanitary Inspectors was held at Ashton Hall on Sept. 1st. Mr. Francis Vacher, the president of the union, delivered the annual address which dealt entirely with the duties of sanitary inspectors.

Sept. 4th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Dublin Sanitary Association.

AT the last meeting of the Council of the Dublin Sanitary Association which took place on August 23rd the following resolution was passed:—

That the council approve the proposition made by the Joint Committee of the Houses of Parliament on the Boundaries Bill that a joint drainage board for the city of Dublin and the townships of Rathmines and Pembroke should be constituted, and that in the opinion of the council a similar organisation for the administration of the Public Health Acts would be for the public advantage of the Dublin metropolitan area.

Belfast Union Infirmary.

At a meeting of the Belfast guardians held on August 21st Dr. James Lynass, visiting surgeon to the Union Infirmary, in a report on his department for the past half year, drew attention to the inconvenience of having to admit alcoholic cases to the general wards. There were, in addition to the 179 cases of ordinary alcoholism, 196 patients recently with surgical injuries associated with alcoholism. He advised that separate accommodation should be provided for these cases in the form of a male and female ward which would merely entail some structural changes in rooms existing on the ground floor of the infirmary. Again, it is absurd that cases of insanity should be treated in the infirmary. The proper place for such patients is the asylum, where they would receive expert treatment.

Typhoid Fever Epidemic in Lisburn.

At a special meeting of the Lisburn Urban District Council held on August 22nd it was decided in view of the increase of typhoid fever in the neighbourhood of Lisburn to adopt the Infectious Diseases (Notification) Act, 1899, and the Infectious Disease (Prevention) Act 1890. It was decided also that the sanitary sub-officer should act as professor of dairies.

New Research Scholarship at Queen's College, Belfast.

Her Majesty's Commissioners for the Exhibition of 1851 have again placed at the disposal of the authorities of Queen's College, Belfast, the nomination of a research scholarship of £150 tenable for two years. Previous holders of these exhibitions have been obliged to do their work in England. There is no reason why the present nomination might not be confined to original work done in some one of the excellent laboratories at Queen's College, Belfast.

Precautions in Dublin against an Outbreak of Bubonic Plague.

On account of the outbreak of bubonic plague in Glasgow the authorities at Dublin are taking every precaution to prevent the infection of the city through vessels arriving from suspected ports. Two vessels arrived on August 30th and were detained in the river until an examination was made by the medical officer of health of the South Dublin Union, who satisfied himself that there was no serious disease on board. The Irish Local Government Board have addressed a letter to the Dublin Corporation in which they state that no system of inspection of vessels, however perfect, was capable of preventing the introduction of cases which were not sufficiently developed to afford evidence for their detection. The Local Government Board, moreover, wish to be informed as to what action has been taken by the corporation upon the recent commission of inquiry into the public health of the city of Dublin and what steps have been taken to provide suitable accommodation for the isolation and treatment of cases of plague should they arise, and for the detection and isolation of suspicious cases, in order that the persons under observation might not be themselves subjected or expose others to the risk of infection. The Board also forwarded the report of one of its medical inspectors which contained the following:—

The sanitary condition of the city should earnestly engage the attention of the Public Health Committee and precautionary measures should in every detail be strictly carried out. The question of the destruction of rats (which have been notoriously found to be the medium of conveying infection) should also be considered by the sanitary authority. The destruction of these on incoming ships and in the warehouses by the river-side would be a preventive measure of undoubted advantage and is well worthy of consideration.

The corporation referred the matter to the Public Health Committee.

Main Drainage of Dublin.

The foundation stone of the new outfall works in connexion with the main drainage of Dublin was formally laid by the Lady Mayoress of the city on August 28th in the presence of a large and representative audience. The Lord Mayor said that the important contract for the outfall had been handed to Messrs. Pearson and Son whose representative, Sir William Pearson, he took that opportunity of welcoming to Dublin. The citizens might now look forward to the main drainage being completed within two years. Sir William Pearson alluded to the advantage that would result to the health and life of the citizens and remarked that the cost of the scheme would only amount to £1 for each inhabitant.

Irish Poor-law Medical Officers.

The disputes between the dispensary medical officers and the boards of guardians continue, and every week the papers are full of discussions at the meetings of the guardians. The following resolution has been passed by the Belfast, the Newry, and the Armagh boards of guardians:

That, as it is manifestly unjust that the guardians should be compelled to pay substitutes of medical officers while such medical officers are engaged in other work for which they receive ample remuneration, this board requests the Local Government Board to alter the dispensary rules (22, 23, and 24) to provide for such cases.

This resolution evidently refers to the fact that dispensary medical officers are often subpœnaed to the assizes as Crown witnesses, and though they are only paid two guineas per diem and expenses the guardians expect that they should pay their substitutes with the miserable pittance doled out by the Treasury. At the meeting of the Armagh board of guardians held on August 28th, Dr. S. Tate, Rich-hill, wrote that as he had been attending a bad case of erysipelas and had been then summoned to attend a midwifery case, which it would have been dangerous for him to attend, he had been obliged to call in Dr. G. Liddle, and he asked the board to order payment for such attendance. Some of the board thought, as the case of erysipelas was a private case and the midwifery case was a dispensary one, Dr. Tate should pay the fee himself. The board divided on the question, and it was decided by 10 votes to 9 to pay the fee.

The Belfast Ambulance System.

There is no public service of which the city of Belfast has greater right to be proud than its admirable ambulance system. From the report of the superintendent of the fire brigade (it is by this body the ambulance service is worked) for the year ending June 30th, I find that the duties in connexion with the ambulance service are increasing. 1875 calls were received, occupying over 991 hours, showing an average of 32 minutes per journey from the receipt of the call until the carriage returned to its station. The distance traversed was over 4599 miles, or an average of two and a half miles per single journey. In November last a new carriage was presented to the corporation. Admirable service was rendered by the ambulance system in connexion with the late Belfast Lough accident, the injured passengers being rapidly conveyed from the quay to the hospital.

The Plague.

The utmost precautions are being taken by the sanitary authorities in Belfast and the other Ulster ports closely related to Glasgow to prevent the introduction of the plague from that city into Ireland.

Sept. 4th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Parasite of Dourine.[1]

AT a recent meeting of the Academy of Medicine M. Nocard, Director of the Veterinary School at Alfort, read an important paper upon Dourine and Its Parasite. The paper was prompted by a series of notes relative to the experimental study of dourine in the horse, which had been submitted to the Academy by M. Buffard and M. Schneider. M. Nocard stated in his paper that trypanosoma, first observed in 1896 by M. Rouget, an army surgeon, had been also found in 1899 by M. Buffard and M. Schneider in two animals suffering from naturally contracted dourine—namely, a horse and a donkey. After sundry passages through dogs the parasite re-transferred to horses communicated to them attacks of dourine absolutely like the naturally caught complaint and, like it, transmissible by coitus. Two well-known maladies are already known to depend upon the trypanosoma—namely, the "Surra" of India and the "Nagana" of South Africa. In future, then, dourine must be placed alongside of these two, even if all three are not simply different manifestations of the same parasite.

True Essential Hæmaturia.

It is the general opinion that there is no such thing as essential hæmaturia. M. Lancereaux, however, is not of this opinion and at the meeting of the Academy of Medicine held on August 2nd he spoke with the view of defending the thesis that there is a class of hæmaturia independent of any anatomical disturbance and which is simply due to some disturbance of the nervous mechanism which regulates the urinary apparatus. He cited the observations of Hoffmann who had reported cases of hæmaturia which gave rise to no dangerous symptoms, both in young and plethoric subjects, and in elderly men in whom it occurred, for example, after stoppage of hæmorrhage from piles. He also quoted from Latour d'Orleans who had reported two cases of hæmaturia occurring in young women of nervous temperament after a fit of rage or after suppression of the menses. Monneret had noticed the same thing in chlorotic and hysterical patients. M. Lancereaux had seen many cases of essential hæmaturia. Sometimes it occurred in an arthritic patient who also suffered from hæmorrhoids which had apparently shrunk and dried up (this happened in two cases). Another case was that of a woman who had suffered from hæmaturia for a year. Nothing seemed to stop it until she took one gramme of sulphate of quinine daily for eight days. Another case was that of a man who had hæmaturia every 15 days for six months. He was going to have his kidney removed when M. Lancereaux prescribed a dose of sulphate of quinine varying from 1·25 grammes to 1·57 grammes to be taken every evening. After six days the hæmaturia had entirely disappeared. As a rule the general health is not affected in this form of hæmaturia. The patient has a feeling of uneasiness over the kidneys but no real pain, the hæmorrhage is intermittent, and between the crisis the urine is absolutely normal. The blood and urine are intimately mixed in the bladder. Finally, sulphate of quinine in doses of from 0·80 to 1·50 grammes cures almost all these patients. Such are the characters, diagnostic points, and treatment of this remarkable complaint.

Gastric Disturbances at the Menopause.

M. Dalché recently discussed this question before the Therapeutical Society. According to him gastric disturbances are frequent among women at the time of the menopause. Two etiological factors are present: (1) ovarian insufficiency, and (2) the congestive attacks (*poussées fluxionnaires*) which affect the different organs at this time. The immoderate use of tea, coffee, tobacco, strong drinks, and alcohol gives rise to serious gastric trouble. Also a great number of gastric troubles may be set down to a condition of neurasthenia to which most women have to pay tribute more or less heavy at the time of cessation of menstruation. If any doubt is raised as to the connexion between the menopause and gastric trouble proofs are at hand by recalling to mind the sequelæ of a surgically-induced menopause. In women who have had both ovaries excised the medical man sees among an infinite variety of symptoms disinclination for food, gastralgia, hæmatemesis, together with diarrhœal and hæmorrhoidal crises which did not exist while the patient menstruated. Treatment must vary according to circumstances, but the connexion of the menstrual function with these complaints offers some indications. If, for instance, the patient has hæmorrhage from piles it should be encouraged rather than stopped. Mustard foot baths, hot sitz baths, and dry cupping over the kidneys all give relief. If these are not sufficient recourse must be had to blood letting. A fairly large number of leeches may be placed on the inner sides of the knees, as recommended by Trousseau, or applied to the thighs, the hypogastrium, or the epigastrium. In cases where the pain was very acute M. Dalché obtained good results by the use of blisters. Between the crises hydrotherapy is most useful and the effects of ovarian extract must not be lost sight of.

Sept. 4th.

[1] Dourine, or Maladie du Cöit, is an infectious disease occurring in cattle and horses transmitted by sexual intercourse.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Alleged Existence of Plague in Cardiff.

No case of plague has occurred in Hamburg since the one mentioned in my last letter.[1] The energetic measures of the sanitary authorities of Hamburg which were carried out under the control of Dr. Nocht, the able chief medical officer to the port, have proved successful. In order to avoid infection no necropsy was made after the death of the unfortunate steward. The vessel was thoroughly disinfected and has now left the quarantine station where it had been for about a fortnight. The authorities of the port of Hamburg did not understand at first where the man could have caught the disease. The steamer *Rosario* had come direct from Cardiff where it had lain for a rather long time. The sanitary officers, therefore, concluded that the port of Cardiff must be infected with plague, probably by steamers coming from Oporto and Bombay. One of the leading Berlin daily papers which has relations with the Government stated 10 days ago that the Imperial Health Office was convinced that plague existed at Cardiff and that there was reason to believe that in other British ports cases of this disease had occurred without being recognised. This was written about a week before the announcement that the disease had appeared in Glasgow.

Precautions against Plague.

With a view to avoid infection of German ports by vessels arriving from abroad the Minister of Public Instruction, as chief of the Prussian medical department, convoked a meeting of the medical members of the above department and some other hygienists, including Professor Pfeiffer who had visited India for the study of plague. The meeting discussed the measures taken by the local authorities which were generally found to be satisfactory. The Minister appointed two additional sanitary officers for the port of Stettin where the medical inspection of vessels arriving from abroad was inadequate.

A False Alarm of Plague in Berlin.

A fortnight ago the public were again alarmed by the announcement that a case of plague had occurred in Berlin. This had no connexion with the case in Hamburg, the suspected patient being a servant of the Royal Institution for Infectious Diseases, a man who had to clean the rooms in the laboratory where specimens of plague cultures procured from Oporto were preserved. The regulations of the institution are very strict. No one is allowed to enter the rooms where dangerous cultures of any kind are kept except the medical men who work there and one servant who assists them and has to clean the rooms. The members of the staff working in these rooms have to wear a special dress capable of being disinfected and the rooms themselves are situated in an out-of-the-way wing of the building. Everything is thus done to avoid an event like that at Vienna, where the carelessness of a drunken servant three years ago led to an outbreak of plague in the hospital, fortunately confined to three or four cases. Notwithstanding these precautions one of the medical staff working in the plague laboratory a few days ago observed a carbunculous swelling on the nose of the servant attached to the laboratory. The swelling was of a suspicious character and owing to the possibility of an infection to which

[1] THE LANCET, August 18th, 1900, pp. 494 and 550.

the man might have been liable by his work he was at once strictly isolated in one of the pavilions of the hospital of the institution. This proved to be the more necessary as on microscopical examination suspicious bacilli were found in the pus of the part. The patient was attended by the medical man under whom he had been employed in the laboratory and who was isolated along with him in the pavilion. Moreover, the family of the servant and some friends with whom he had last spent an evening, although in perfect health, were all isolated in another ward. Nobody was allowed to enter the ward, the food being supplied to the inmates through the windows. Fortunately the alarm proved to be a false one, as the patient got well in a few days, and cultures of the suspected bacilli were found to be harmless when inoculated into rats and mice. The man and his family were therefore allowed to leave the hospital where they had spent some rather anxious days.

Treatment of Constipation.

Dr. Ziemssen of Wiesbaden, writing in the *Berliner Klinische Wochenschrift*, recommends resort to the stomach-pump and to washing out the stomach in cases of persistent constipation. By the daily application of this method the peristaltic movements not only of the stomach but also of the entire gastro-intestinal canal become increased so that soft fæces are generally passed after about half an hour. The success is often so obvious that patients who have suffered from constipation for a long time are able after a week to have a spontaneous action of the bowels every morning and continue to do so for years. The results are often superior to those obtained by aperients, massage, and electricity. Dr. Ziemssen recommends that from half a litre to a litre of Wiesbaden Hochbrunn water should be used and that the stomach should be evacuated at once by lowering the funnel of the pump. This procedure is to be repeated from 15 to 20 times every morning with a greater quantity of water every time till the patient becomes aware of a slight pressure within the stomach. Dr. Ziemssen is of opinion that the treatment acts like massage of the abdominal muscles and that the contractions are propagated to the intestines. The drinking of Wiesbaden Hochbrunnen water has only a temporary effect as an aperient, whilst the application of common hot water by the stomach-pump is useless. Apart from chronic constipation the method has proved useful in chronic catarrh of the stomach, dyspepsia, atony, dilatation, hyperacidity, neuroses, and chronic ulcers of the stomach.

Medical Graduation of Women.

By a recent decision of the German Federal Council female medical students of German nationality are entitled to be admitted to the State examination in medicine even if they have passed their preliminary examinations and received their medical education in Switzerland. As the State examinations in medicine begin in November the medical men in Germany will very soon have the opportunity of meeting female practitioners, the number of German female medical students in Switzerland being rather considerable. Those ladies, also, who have already settled in Germany with Swiss diplomas will now be in a position to take German qualifications by passing the State examination without being forced to begin their curriculum again. The present favourable disposition of the Government towards medical women has led to the rather absurd situation that female medical students enjoy privileges as to study abroad which are refused to the male sex.

Sept. 3rd.

ROME.

(FROM OUR OWN CORRESPONDENT.)

Sanatoria for Tuberculosis in Italy.

AT a moment when all hearts are softened by the tragical death of King Humbert, whose kindness to the poor and sympathy with their sufferings are fresh in the minds of the people, Professor Baccelli's suggestion for commemorating his memory by the establishment of sanatoria for the treatment of tuberculosis throughout the country will, it is hoped, be received with substantial support. The leading Roman daily *La Tribuna* makes an eloquent appeal in behalf of the scheme, which it seems has already been initiated by the formation of an influential committee who are to begin forthwith the organising of a great "Sanatorio Umberto I. per la Tuberculosi" as Italy's national monument to the memory of her murdered king. Certainly no record in bronze or marble could so fitly commemorate the best qualities of the late monarch than an institution which would have for its aim the prevention of the untold misery and fearful loss of life directly or indirectly attributable to that most insidious and widespread of all diseases, tuberculosis; and nothing could better serve to perpetuate the memory of his ready sympathy with the sufferings of his people shown on all occasions, but most conspicuously perhaps during times of dangerous epidemics, when he was wont to throw himself heart and soul, regardless of personal risk, into the work of visiting and helping the sick and comforting the dying. The scheme thus begun is an ambitious one, comprehending the founding and establishment of sanatoria throughout the whole of Italy under one control and direction, with a central seat in Rome and branches at such other principal points as are best suited by their climatic and hygienic conditions for the cure of tuberculosis. Owing to its geographical position Italy is singularly adapted for carrying out such a great scheme successfully, including as it does in small compass a vast number of localities totally distinct from one another in their climatic peculiarities and yet possessing in common the great advantages of pure air and the perennial sunshine with which the whole peninsula is blessed. With these different sanatoria all under one management and each offering its own special advantages of climate derived from its topographical position it would be possible to place each patient, no matter where he presented himself, in the surroundings best suited for his particular case as indicated by the nature of the disease, the stage of the destructive process, and the various complications which so greatly determine the kind of climate required. A considerable sum of money has already been collected in Rome for setting the scheme on foot and at Milan enough has already been forthcoming to start a Lombard institution. In Naples the munificence of the Duchess Ravaschieri has made the foundation of the proposed sanatorium at Pozzuoli no longer uncertain, whilst in Palermo another public benefactress, Signora Giovanna Florio, has offered a donation which will bring the fund for the erection of a Sicilian sanatorium to a total of about £10,000. Unfortunately the Villa Hygeia at Palermo about which so much was heard last winter has fallen into the hands of speculators, and in place of the sumptuous hospital for which it was originally intended it is now to be converted into the "Grand Hotel."

Sanitary Progress in Italian Cities.

Whilst it may be doubted whether the scheme for the multiple establishment in Italy of sanatoria for the treatment of tuberculosis is not too ambitious ever to be realised and will not prove to be more creditable to the heart than to the head of its sanguine originator, it must be confessed that the Italians are endowed with a degree of public spirit, especially in the direction of sanitary reform, which makes even so great an undertaking assume tangible shape. Our preconceived notions of the Italian character might lead us to regard them as unpractical and chimerical people, but their sanitary progress contradicts this view. Of this we have striking evidence in Rome itself, where, in the face of apparently overwhelming financial and other difficulties, vast schemes of improvement have been undertaken and carried out which have had the effect of a veritable transformation. It is true that to the artist and the archæologist this transformation has not always been a welcome one, but love of the antique and the picturesque must give way when the health and well-being of a large population are at stake. The wholesale removal, for example, of ancient and interesting but insanitary houses and streets; the erection of modern buildings upon such classic ground as the gardens of Sallust or Mecænas; the disappearance of those picturesque banks which made the Tiber so favourite a subject for the painter's brush and the substitution for them of hard, monotonous lines of masonry; all this is vandalism and desecration in the eyes of the lover of Old Rome, who at the same time is fain to admit the vast improvement affected thereby in the cleanliness, comfort, and salubrity of the city. The mortality returns bear eloquent testimony to this amelioration and compare very favourably with those of the other large cities of Europe and of America, among which Rome now stands in the first rank for lowness of its death-rate (17·2 per mille in 1899). In the course of the last decade the extensive buildings on the Esquiline hill, in the Ludovisi quarter, and

on the Prati di Castello, outside the Porta Pia, each in itself a small town, have been added to the ancient city, and in the latter district new streets such as the Corso Vittoria Emanuele and the Via Cavour, leading from it to the new districts, have been opened up. The Tiber, too, which formerly did great damage to adjoining property by its frequent floods, has been effectually walled in by immense embankments of masonry over 40 feet in height from their base, extending on the right bank for a distance of more than four and a half miles, and on the left of six and a half miles. Closely connected with this gigantic undertaking was the construction of the huge main sewers, one on each bank, for collecting the sewage from the branch sewers and carrying it down into the river to a point far below any probable extension of the city seawards. These have a length of about six and a half miles and 11 miles respectively. The total cost of these improvements along the Tiber has reached a figure close upon £4,000,000 sterling. Similar though less stupendous enterprises have been undertaken or are now actively in progress in most of the other large cities of Italy, notably in Genoa, Milan, Naples, and Palermo; and indeed it may truly be said that such an enlightened spirit of progress has entered into the municipal bodies generally as to ensure at no distant date the attainment of a very high standard in the sanitary condition of all the more important cities and towns of the kingdom, particularly those most frequented by foreign visitors.

Sept. 3rd.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

Plague in Constantinople.

BESIDES the case of bubonic plague which occurred recently on the ss. *Niger* of the Messagéries Maritimes a second case is reported on board the same steamer. The first was a boy, aged 14 years, who came from Kharput and embarked at Alexandretta; the second case was that of a steward of the same ship. Their illness began with chill, slight fever in which the temperature rose to 40° C., and with enlargement of the glands of the groin as well as of the armpit. This outbreak has made a certain impression on some of the visitors, who left Constantinople immediately. They did so not so much because they were afraid of the plague as to avoid the quarantines which the neighbouring governments would subject them to. I am glad to state that the public health here is perfect, but in spite of the good health of the place Russia has imposed a quarantine of 10 days on all ships arriving from Constantinople. They undergo the quarantine at Theodosia.

The Twenty-fifth Anniversary of the Sultan's Reign.

To-day is the twenty-fifth anniversary of the reign of H.M. the Sultan Abdul Hamid II. The Sultan holds in very high esteem the medical profession and never allows an opportunity to go by without compensating merit by honours. Among the other presents to the Sovereign there is that of the Imperial Medical Society, known by repute to many of your readers. The Imperial Medical Society, which was founded during the Crimean war under the auspices of Sultan Medjid by the chief physicians of the allied armies, are presenting to His Majesty an address of congratulation and of good wishes on the occasion, and it has been decided to publish a work relating all that has been done under His Majesty's reign in connexion with hygiene and medicine. The Sultan Abdul Hamid II. was the first among the sovereigns to honour the late Professor Pasteur with the decoration of the Grand Order of the Medjidieh. Dr. Zoeros Pasha, an army physician with the rank of general, conveyed with the compliments of His Majesty the highest rank of the Order of the Medjidieh to Pasteur with £500 as a contribution to the building of the Institut Pasteur in Paris. Professor Pasteur was asked to teach the new science of microbiology to Dr. Zoeros Pasha. In fact, he was taught how to prepare the antirabic virus and how to treat those who were bitten by rabid dogs, and in May, 1887, the first antirabic institute outside France was installed at Constantinople. More than 2500 persons have been treated in this antirabic institute by Dr. Zoeros Pasha, among whom there have been some deaths, averaging 0·5 per cent., and this because most of the patients were too late in taking advantage of the antirabic treatment. In one case an officer of the army who had been bitten by a rabid dog at Ismid (Nicomedia) went to the military hospital of Haidar Pasha where only the wounds were dressed, and shortly after he left the hospital he had symptoms of rabies. Then, and not until then, his case was brought before Dr. Zoeros Pasha. Needless to say that he died. This fact was reported to the Sultan, but not in the right way, and as a consequence Dr. Zoeros Pasha, in spite of his rank and of his long and faithful services, was replaced by Dr. Mari, a Frenchman. The Sultan has also presented the empire with an institute where anti-diphtheritic serum is prepared and the medical men of the country hope to have soon an institute for the preparation of the anti-plague serum. The solicitude of the Sultan for the health of the Turkish army is noticeable. During the last epidemic of cholera he ordered that "water of best quality" from the renowned spring of Karakoulak should be served to the soldiers, and as no cases of cholera were registered among the Turkish soldiers the spring must be considered to deserve its fame.

Constantinople, Sept. 1st.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Annual Report of the Toronto Health Department.

THE annual report of the medical health officer of the city of Toronto, Dr. Charles Sheard has just been issued and contains the operations of the department for the past year, as well as several exhaustive and important papers dealing with the treatment and prevention of diphtheria and small-pox, with food inspection, and with plumbing and draining. In the sanitary department there were 3213 complaints, 7881 inspections of nuisances, 6234 house-to-house inspections, besides inspections of livery stables, slaughter-houses, &c., and 79 cases were prosecuted in the police-court. The food inspector reported only eight instances of cattle in the market entirely unfit for food. During the year this officer made 9910 shop inspections and made considerable confiscations. The inspection of milk, a vital and important question, has apparently been handled ably by the health department of Toronto during the past year. The total milk-supply of the city embraces 1634 cans daily, which is furnished from an area of country of upwards of 30 square miles. In the opinion of Dr. Sheard, wilful adulteration of this article of diet is not practised to any extent in his jurisdiction. Education of the public will be, however, continued along the lines of perfecting the milk-supply. During the year there were 2397 inspections of city milk depôts, 419 inspections of cow byres, and 598 samples of milk were collected and analysed. As regards contagious diseases there were reported during the year 225 cases of typhoid fever, 1013 of scarlet fever, and 458 of diphtheria, of which 34, 55, and 82 cases respectively resulted fatally. The total number of patients of all kinds admitted to the civic hospital during the year was 804. Of these, 458 had scarlet fever, 334 diphtheria, eight small-pox, one chicken-pox, and three measles. The number of deaths during the year was 58, but six of the patients who died were moribund when brought into the hospital, expiring almost immediately. The death rate, including those who were moribund, was 6·16 per cent., and excluding them it was 5·48 per cent. Professor Shuttleworth, the civic bacteriologist, in his report on the bacteriological work, goes very fully into the nature and duration of diphtheria, paying particular attention to susceptibility as influenced by age. Of 238 cases of true diphtheria the ages were as follows: five years and under, 32·6 per cent.; from five to 10 years, 29·6 per cent.; from 10 to 15 years, 12·7 per cent.; over 15 years, 25·0 per cent. Thus according to this statement children under five years of age are more susceptible. The deaths were as follows: under five years, 24; from five to 10 years, five; from 10 to 15 years, three; and over 15 years, four. During the last year small-pox has invaded the city five times. The medical officer of health gives it as his opinion "that the two secrets of success in handling the disease in a densely populated community are, first, the capability of accurately diagnosing the disease; secondly, the prompt, complete, and absolute isolation of those

infected and exposed to infection." Opposition to vaccination, he goes on to state, so far as the city of Toronto is concerned, is non-existent.

Typhoid Fever at the Royal Victoria Hospital, Montreal.

There were treated in the wards of the Royal Victoria Hospital, Montreal, during 1899, 98 cases of typhoid fever, of whom 65 were males and 33 were females. Of these 98 cases 86 were treated to a conclusion, and the observations of the senior resident physician there, Dr. B. D. Gillies, are interesting. As regards age the average age of all the patients was 23 years, the youngest being only three and a half years and the oldest 58 years. Classified in decades, four cases occurred under 10 years of age; 21 between 10 and 20 years; 40 between 20 and 30 years; 16 between 30 and 40 years; four between 40 and 50 years; and in one case over 50 years. The largest number of cases was admitted during the month of August; the smallest number were admitted during December. 52·3 per cent. began in July, August, and September; 18·4 per cent. during October, November, and December; 18·6 per cent. during April, May, and June; and 11·7 per cent. during January, February, and March. Concerning the duration of the cases the average number of days in hospital was 39·5; the average duration of fever was 24·6 days; the longest period of fever was 58 days; the shortest period of fever was eight days. In one case there was definite proof that infection had been contracted through milk. Five cases were admitted from one family where defective sewerage was known to exist, whilst in four other instances two or more members of the family were ill at the same time. Referring to the observations regarding the symptoms it is noticed that 95·4 per cent. of the cases developed gradually with general malaise, frontal headache, and anorexia as the most prominent and constant symptoms. In two cases pain in the abdomen was severe, of sudden onset, and localised so as to simulate an attack of appendicitis. Diarrhœa was present at the onset in 20·9 per cent.; epistaxis in 18·6 per cent.; vomiting in 34 per cent., and delirium in 18·6 per cent., and in nearly every case it was of a low, muttering character. There was an eruption present in 72 per cent. of the cases, the earliest appearance of the rash being on the fourth day of the disease and the latest on the fortieth day of the disease, whilst in one case the rash appeared during the relapse alone. The shortest duration of the rash was three days, the longest was 27 days, the average being 11 days. The spleen was palpable in 67·4 per cent. of the cases; in one case on the first day of the disease; in another until the fourth day of the relapse, being the twenty-fifth day of the disease; on the average it remained palpable for 12 days. A definite relapse occurred in 12·7 per cent. of cases, the longest duration of any single relapse being 29 days, the shortest eight days, and the average 18 days, whilst in three cases the relapse was stated to be more severe than the original attack. Temperature had been normal for 17 days in one case when the relapse set in, while in another it had only been normal for 24 hours when the relapse set in. One patient was admitted to the hospital for typhoid fever who had recovered from an attack four weeks previously. As regards temperature, the highest was 106·4° F.; the maximum in one case was 100·4°; the average in all the cases was 103·4°; and in 48·8 per cent. of the cases it reached 104° or over. The Widal test was employed in all the cases. In only four cases was the reaction negative during the whole course of the disease, and of these three were regarded as abortive cases; in the most prolonged of these cases the temperature remained elevated for 10 days and there were no rose-spots present in any of the four. In one case the reaction appeared as early as the fourth day of the disease; in another case it was not positive until the eighteenth day of the disease; on the average it was present on the eighth day. In six of the cases at the date of discharge from the hospital the reaction has been tried and resulted positively in all. Investigations are being pursued further along this line. The typhoid fever mortality has been higher this year than any other since the hospital opened, there being seven deaths, or 8·16 per cent. Hæmorrhage was the cause of death in three cases, hæmorrhage and perforation in one, perforation in one, and profound intoxication in two cases. During the six years of its existence 494 cases of typhoid fever have been treated in this hospital, divided as follows with deaths:—1894, 84 cases, three deaths; 1895, 84 cases, four deaths; 1896, 72 cases, no deaths; 1897, 75 cases, seven deaths; 1898, 93 cases, four deaths; 1899, 86 cases, seven deaths.

State of Health in the Yukon.

The report of the medical health officer, Dr. J. W. Good, dated Dawson, June 23rd, gives the state of health of that district at that time. There was then no typhoid fever, no diphtheria, no small-pox, and no dysentery. More recent reports state that there are now five cases of small-pox down the river from Dawson City which are quarantined, and that Dr. Montizambert, Director-General of Public Health at Ottawa, is on his way there to investigate the outbreak. At the same date last year cases of dysentery and of typhoid fever were plentiful. The number of paying patients in the Good Samaritan Hospital at Dawson was 11; non-paying, 12; total, 23. The number of paying patients in St. Mary's Hospital was 4; non-paying, 14; total, 18. Non-paying patients must make a declaration as to the state of their finances, which is also certified to by a friend, and the rule works smoothly. Months ago the medical officer of health, noticing that small-pox was prevalent in other portions of Canada, advised the Board of Health to lay in a supply of vaccine, as vaccination was not being performed to the extent it should be in that country. The water-supply of the city is stated to be good and in the hands of a good company and the use of drinking water from other and questionable sources is entirely displaced. Great improvements have been made in the way of drainage and removing of obstructions of various kinds from the streets, and good work has also been done in the way of prosecuting merchants and others who profit by the sale of diseased and spoiled articles of food.

The Medical Department of McGill University.

The annual convocation for conferring medical degrees was held on June 23rd, when 75 graduates, having fulfilled all the requirements to entitle them to the degree of M.D., C.M. from the University, were presented therewith. A new departure this year, the first of its kind in either Canada or the United States, was the awarding of diplomas of Public Health to four graduates in medicine who had taken this special course at McGill University. These gentlemen were W. W. Ford, B.A., M.D.; J. E. Laberge, M.D.; H. S. Shaw, M.D.; and J. E. Williams, M.D. This convocation brought to a close the sixty-eighth working session of the medical faculty of McGill University. The faculty originated in 1829, the first session beginning with 30 students, and its yearly sessions have continued without interruption, with the exception of the three years of the Canadian Rebellion from 1836 to 1839, the session of 1839-40 opening with 28 students. In making his address the Dean, Dr. Craik, stated that it had been his good fortune to be connected with 50 sessions. 50 years ago the total number of students of all kinds in the faculty was 53; this year 478 were enrolled on the Register, 31 more than last year, and of these 457 were proceeding to their degrees while 21 were doing post-graduate work. 52 of these students came from the United States, 14 more than the previous year, which goes to show the estimation in which this first of Canadian medical schools is held by our neighbours to the south of us. The new department of Public Health has been fashioned, with modifications, after similar qualifications given by some of the institutions of Great Britain.

Toronto, August 18th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

A New Movement for the Organisation of Private Asylums.

THE Association for the Study and Cure of Inebriates have held a meeting for the purpose of securing a thorough organisation of all private asylums which exist for the treatment of mental diseases and drug cases. It was stated that there are nearly 100 asylums, homes, and sanatoriums in the New England and Middle States for the treatment of inebriates, mental, and nervous cases, over half of them being charlatan institutions. Such institutions are without organisation or system, are without State or local licence or supervision, and are managed by unknown persons. A large number of representatives of different asylums were present at this meeting and the following propositions were agreed upon as representing the objects of the conference: 1. To promote the scientific study of alcohol and other drug neuroses and to encourage desirable and special legislation

with reference to the care and control of such cases. 2. To isolate the chronic pauper inebriate from the insane and criminal class and to secure the erection and maintenance by the several States of institutions for the segregation and special treatment of chronic pauper inebriates and to incorporate farm colonies or other forms of institutional relief which shall combine medical care with occupation, control, and discipline. 3. To secure in all States the special supervision and inspection of all institutions for the care and control of inebriates and other drug neuroses. 4. To discourage and prevent all efforts to treat alcoholic inebriety or the opium or other drug addictions with secret drugs and other so-called specifics, and to prohibit the sale of all other nostrums which claim to be absolute cures and which contain alcohol, opium, or its alkaloids, or other harmful or pernicious drugs, or which contain substances which are inert and are fraudulent impositions on the public. 5. To encourage, as an association, every individual or organised effort to study scientifically and practically all the various means and methods of both cure and prevention which are found valuable in the treatment of alcohol and other drug addictions. 6. There are many institutions in this country which treat the alcoholic and other forms of drug addiction associated with mental and nervous cases. These institutions should all be organised and follow some general principles and methods of work. By this means public opinion could be more effectually influenced and legislation secured resulting in a great advance in the uniform scientific treatment of such cases.

Jewish Charities and the Treatment of Tuberculosis.

The Jewish charities of the United States rank, as a class, among the best in every community. They are well managed and well supported and their aims are definite and are sought to be obtained by the most effective agencies. The first annual meeting of the National Conference of Jewish Charities was held in Chicago this summer when delegates from 35 cities were present. A paper on Federation *versus* Consolidation of Jewish Charities in a City was read by Professor Morris Loeb of New York city. Instead of obtaining funds for charitable societies by means of fairs, entertainments, &c., he recommended more concerted action in bringing to the notice of the community the charitable institutions in its midst and suggested as an alternative for the present system a scheme of federation, wherein the various societies would retain their individuality but would receive their appropriations from a common treasury. Another paper, discussing the relation of bad housing to poverty, showed that the main causes of poverty in the tenement house districts of New York, as proved by statistics gathered for the years 1898 and 1899, were as follows: lack of employment, 19 per cent.; sickness, 15 per cent.; insufficient employment, 11 per cent.; intemperance, 8 per cent.; and no male support, 5 per cent. In a paper on Tuberculosis as Affecting Jewish Charities Dr. Lee K. Frankel, of New York, called attention to the fact that consumption was on the increase among the poorer classes of Jews, statistics collected from the various cities throughout the country proving this fact. He also affirmed that the medical profession of to-day was nearly unanimous in the opinion that special climatic conditions are no longer necessary for the cure of tuberculosis and for this reason he suggested that each constituent society in the conference should endeavour to secure the establishment of sanatoria for the treatment of this disease near its own community. The work of the conference may be summarised as follows: (1) the adoption of uniform rules and regulations regarding the transportation of applicants from one city to another; (2) the care of the consumptive poor; (3) the establishment of a systematic telegraphic code between cities to be used by the various constituents of the conference; and (4) the recommendation of a uniform system of records to be used by the small communities as well as by the larger cities and the publication of annual reports after some uniform plan.

The Prevention of Premature Burial.

The horror of being buried alive has resulted in the formation of a society in the city of New York known as the "American Society for the Prevention of Premature Burial." The society has formally applied for a charter and expects soon to demonstrate the usefulness of such a body. Medical men, the promoters state, issue certificates of death without subjecting the body to a thorough physical test in order to ascertain absolutely the absence of life. The proposed charter of the society provides that physicians certifying to the death of persons in the State of New York shall sign a certificate prepared by the society stipulating that the following tests, or as many of them as may be decided upon, have been applied to the body of the supposed dead without having produced any indication of life: two or more incisions in an artery; the palm of the hand exposed to the flame of a candle; a mirror or crystal held to the lips and no sign of respiration; a hot iron or steel placed against the flesh without producing blisters. The society also recommends the establishment of chapels for the repose of bodies during a certain number of hours.

Railway Accidents.

The latest official figures given by the Interstate Commerce Commission show that during one year there were in the United States of America, all told, 51,743 casualties resulting from railway accidents. Of this number 7123 persons were killed and 44,620 were injured. The number of trespassers killed and injured was very large, there being 4040 killed and 4730 injured. The number of passengers killed was 259, and the number wounded was 3442. During the previous year there were 221 killed and 2945 wounded. The ratio of those killed to those who travelled was one person to every 2,189,023. Of the employés one out of every 420 was killed and one out of every 27 was injured. Of those working on locomotives one was killed to every 165 persons. In New York State where safety brakes have been employed there were 260 persons killed, as against 279 for 1898, and 6725 injured against 6988 for the previous year.

Trustees for Children of the City of Boston.

This is the third year during which not only the "pauper" and "neglected" children, but the institutions for truant and juvenile offenders have been under the charge of an unpaid board of men and women. This class number nearly 1500. The administration has been marked by several distinct steps in advance. One was the complete abandonment of institutional life for normal children, other than those under sentence, and another very important step was the thorough investigation of every case before admission. This was undertaken not merely to determine the question of legal eligibility, but to ascertain whether admission to the status of a city dependent is the best thing practicable for the child. The mother is carefully consulted, charitable societies are appealed to, and every effort is made to find the wisest solution.

Instruction for the Deaf.

Mr. J. C. Gordon of the Illinois School for the Deaf gives the following figures which will be found interesting: The number of pupils in schools for the deaf in the United States in 1899 is 10,291. Of these 61 per cent. are taught speech, oral instruction being used exclusively, or a "combined" method. The balance of 39 per cent. are not taught speech, but use the sign or manual methods exclusively. It is noticeable that the oral method predominates most strongly in the New England or Middle States. In the Central and Western States 58 per cent. are taught speech, while in the Southern States only 31 per cent. are under oral instruction.

August 18th.

Obituary.

JOHN TRESSILIAN TOLL, M.R.C.S. ENG., L.R.C.P. EDIN.

THE news has just reached this country of the death of Surgeon-Major Toll on the voyage from the Cape to Melbourne on board the ss. *Australasian*. Mr. Toll was born in London about 48 years ago and was taken by his parents to South Australia when a child. He was educated at the Adelaide Grammar School, but came to this country in 1871 and entered Queen's College, Birmingham, and all his fellow-students will hear of his untimely death with the deepest sorrow, for "Jack" Toll enjoyed a well-deserved popularity with all. He held two resident appointments at the Birmingham General Hospital, and he also studied in Edinburgh, at University College Hospital, and in Paris. Soon after obtaining his diploma in 1877 he returned to Australia as surgeon in charge of the emigrant ship *Airlie*. Shortly after his arrival he entered

into partnership with his brother-in-law, Dr. Gething, and on the death of that gentleman in 1883 he became Government health officer. He also had the post of medical officer to the Port Adelaide corporation for 15 years. He had the medical oversight of the Largs Bay and Glanville forts and also of the colonial warship *Protector*. When arrangements were being made for the despatch of the first South Australian contingent to the front he offered to accompany the force as a volunteer medical officer without remuneration and went with the troops up the country to Bloemfontein where he was attached to one of the hospitals. Here he was stricken down with the terrible scourge enteric fever. He, however, became convalescent and was invalided home. The *Adelaide Advertiser* of June 25th, commenting on the voyage, says: "The voyage was closed by one sad incident of especial interest to South Australia. Surgeon-Major Toll of Adelaide, who had himself fallen a victim to enteric fever, was returning home. He quickly became a great favourite on board. He was of that temperament which makes men popular. On June 20th the gallant surgeon-major expired. He was seized with an epileptic fit and sank soon afterwards. He was buried at sea with full military honours but his death clouded the end of the voyage."

He married a daughter of the late Mr. W. R. Mortlock and a niece of the Hon. A. Tennant and leaves an only son.

JOHN ORTON, M.D, T.C.D., L.R.C.S. IREL.

DR. JOHN ORTON died on August 19th at Beeston, Notts, where he was born 55 years ago, the son of John Orton, L.S.A. (an apprentice of John Abernethy), who practised at Kegworth, where in 1826 he was the first English surgeon to successfully perform primary amputation at the hip-joint. Dr. Orton succeeded to his father's practice at Beeston about the year 1867, so that for some 70 years the name has been a well known one in Beeston and the neighbouring villages. The subject of this notice was a man of strong character, a passionate lover of Nature, simple and unassuming, but strong in his hatred of anything like pretence or sham, unconventional and ever good-natured and kind. He was a vigorous athlete, a votary of cricket, archery, and lawn-tennis. Beeston by his death loses an "institution" and the profession an upright capable general practitioner. To his many friends and relations the memory of Dr. John Orton will be a sweet one. The unflinching way in which he met his long and painful illness was part and parcel of his character. Dr. Orton never married.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Wilhelm Wagner of Königshütte, a surgeon of great ability, who, though he was unconnected with the teaching staff of any university, yet had been granted the title of professor.—Dr. Porson of Nantes, who distinguished himself during the Franco-German war and who subsequently helped to establish the Union of French Medical Syndicates, being president of the union for five years.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Baltimore Medical College:* Dr. Rowland has been appointed to the Chair of Midwifery.—*Berlin:* Dr. Max Nitze has been promoted to an Extraordinary Professorship of Diseases of the Urinary Organs.—*Chicago (Rush Medical College):* Dr. Westcott has been appointed Assistant Professor of Ophthalmology.—*Freiburg:* Dr. Wilhelm Autenrieth has been promoted to an Extraordinary Professorship of Chemistry.—*Lausanne:* Dr. Freyer has been recognised as *privat-docent* of Internal Pathology.—*Prague (German University):* Dr. F. Weleminsky has been recognised as *privat-docent* of Hygiene.—*Rennes:* Dr. Bodin has been appointed Professor of Pathological Anatomy and Bacteriology.—*Yale:* Dr. Bartlett has been appointed Professor of Pathological Anatomy.

MR. H. E. BURCH, M.R.C.S. Eng., L.R.C.P. Lond., has resigned the appointment of Resident Surgeon to the Memorial Hospital, Bulawayo.

THE RECENT SOLAR ECLIPSE.—The report of the expeditions organised by the British Astronomical Association to observe the total solar eclipse of May 28th, 1900, will be contained in a volume shortly to be issued from the office of *Knowledge*. The work will be edited by Mr. E. Walter Maunder, F.R.A.S., and will contain many fine photographs of various stages of the eclipse.

NORTH DEVON INFIRMARY.—The annual meeting of the subscribers and friends of the North Devon Infirmary was held at Barnstaple on August 21st under the presidency of Lord Fortescue. The report stated that during the past 12 months 654 in-patients and 2269 out-patients had been treated. The average daily number of in-patients was 46, the average stay of each being 25½ days. The financial statement showed that the total ordinary expenditure exceeded the ordinary income by about £500. The committee reported that the convalescent home in connexion with the infirmary at Morthoe was doing a most useful work.

FEES FOR MEDICAL WITNESSES.—An inquest was held at Trowbridge, Wiltshire, on August 27th, upon a boy, aged 10 years, who had died from tetanus at the cottage hospital. The jury returned a verdict in accordance with the medical evidence and the county coroner (Mr. Sylvester) expressed regret that he was unable under the county council regulations to allow a fee to the medical attendant as the death occurred in a hospital. He added that he was of opinion that the Wiltshire county council misunderstood the terms of the Act, which applied only to paid medical officers of hospitals and not to honorary surgeons as in the present case.

LITERARY INTELLIGENCE.—The Sanitary Publishing Company, Limited, announce as ready shortly a new work, entitled, "Essays on Consumption," written by Dr. J. Edward Squire, physician to the North London Hospital for Consumption. An appreciative introduction is contributed by Sir William Broadbent, Bart., M.D., F.R.C.P. Lond., &c.—In our issue of August 25th we reviewed Dr. George Gould's Pocket Medical Dictionary. Appended were the name of the American publisher and the price in terms of American money. Mr. H. K. Lewis, Gower-street, asks us to state that his firm hold the market for the book over here and that the price in this country is 5*s.* net.

THE LATE MR. J. MUDGE.—Mr. James Mudge died at his residence, Hayle, Cornwall, on August 26th. Mr. Mudge, who was born at Bodmin, received his medical education at King's College Hospital and Aberdeen University, qualifying M.R.C.S. Eng. and L.S.A. in 1851. He shortly afterwards commenced practice in Hayle, and was for many years medical officer of health for the local boards of Hayle and Phillack. Mr. Mudge, who was one of the best-known surgeons in West Cornwall, will be much missed in Hayle and the neighbourhood, where he was most popular. The deceased was a prominent Freemason and twice filled the chair of the Cornubian Lodge, being made a Prov. J. G. W. in 1869. The funeral, which took place at Phillack on August 29th, was largely attended.

VACCINATION RETURNS.—At the meeting of the Gloucester Board of Guardians held on August 28th it was reported that the vaccination returns for No. 1 district from July 1st to Dec. 31st, 1899, were as follows: births registered, 179; successful vaccinations, 73; conscientious objections, 20; deaths of unvaccinated children, 19; vaccinations postponed, 7; and children removed, 12; leaving 48 in default.—At the meeting of the Long Ashton (Somerset) Board of Guardians held on August 28th, under the presidency of Mr. F. Weatherly, M.R.C.S. Eng., it was stated that for the six months ending December, 1899, there had been 267 births registered, 161 children had been successfully vaccinated, and 25 had died unvaccinated. There were four postponements and 12 removals, and 55 children remained unvaccinated.—At the meeting of the Devonport Board of Guardians held on August 31st it was reported that during the years 1898 and 1899 there had been 3668 births registered. 1754 children had been successfully vaccinated, and 1020 were unaccounted for. One of the members considered this very unsatisfactory as 50 per cent. of the children were unaccounted for, and eventually a sub-committee was appointed to confer with the vaccination officers upon the matter.

THE annual cricket match between "Parsons and Doctors" which took place recently at Exeter resulted in an easy victory for the medical profession.

PRESENTATION TO A MEDICAL MAN.—On August 24th Mr. James T. Neech, L.R.C.P. Edin., L.F.P.S. Glasg., D.P.H. Vict., of Tyldesley, Manchester, was presented with a silver-mounted set of game and meat carvers by the staff of the Leigh Joint Fever Hospital, Astley, on resigning his appointment of medical officer to the institution to take up the duties of medical officer of health for the county borough of Halifax.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.

BEALE, H. R., L.R.C.P., M.R.C.S., has been appointed Junior Obstetric House Physician to St. Thomas's Hospital.

BENNETT, J. H., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Fourth Sanitary District of the Maidstone Union, vice A. Wood, deceased.

BOULTON, A., L.R.C.P. Lond., M.R.C.S., D.P.H., has been re-appointed Medical Officer of Health by the Horncastle Rural District Council.

BOWEN-JONES, L. M., L.R.C.P. Lond., M.R.C.S., D.P.H., has been appointed Medical Officer of Health for the Borough of Carmarthen, vice W. L. Hughes, deceased.

BURFIELD, T., M.A., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., has been appointed Assistant House Surgeon to St. Thomas's Hospital.

CLARKE, H. H. R., L.R.C.P., M.R.C.S., has been appointed Assistant House Physician to St. Thomas's Hospital.

CUNNINGHAM, J. F., L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

DAVISON, H. E., M.B., B.S., B.Hy. Durh., M.R.C.S., L.R.C.P. Lond., has been appointed Resident Medical Officer to the Newcastle-on-Tyne Dispensary, vice W. Hardcastle, resigned.

DUDGEON, L. S., L.R.C.P., M.R.C.S., has been appointed Clinical Assistant in the Electrical Department of St. Thomas's Hospital.

EDWARDS, T. H., L.R.C.P., M.R.C.S., has been appointed Assistant House Surgeon to St. Thomas's Hospital.

ENSOR, C. A., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer of Health for the Tisbury Rural District, vice J. A. Ensor, resigned.

EVE, F. C., B.A., M.B. B.C. Cantab., has been re-appointed House Physician to St. Thomas's Hospital.

FERGUSSON, JAMES HUGH, F.R.C.S. Irel., D.P.H., has been appointed Medical Superintendent Officer of Health for the County Borough of Londonderry.

FLANAGAN, P. J., L.R.C.P., L.R.C.S. Irel., has been appointed Certifying Surgeon under the Factory Acts for the Carney District, County Sligo.

GREENWOOD, ALFRED, M.D., Ch.B., D.P.H., L.R.C.P., L.R.C.S., has been appointed Medical Officer of Health to the Borough of Crewe and Medical Superintendent to the Crewe Isolation Hospitals, vice Meredith Young.

HARRIS, H. G., M.B., B.S. Durh., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon to the Paddington Green Children's Hospital, London.

HARWOOD, H. M., M.A., M.B., B.C. Cantab., has been appointed House Physician to St. Thomas's Hospital.

HAWKINS, C. L., M.A., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

HEDLEY, E. W., M.A., M.B., B.C. Cantab., has been re-appointed House Physician to St. Thomas's Hospital.

HEWETSON, ALFRED, M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Surgeon to the Huddersfield Infirmary.

HOWLETT, B. F., L.R.C.P., M.R.C.S., has been appointed Senior Obstetric House Physician to St. Thomas's Hospital.

KILVERT, J. E., L.R.C.P., M.R.C.S., has been re-appointed Senior Ophthalmic House Surgeon to St. Thomas's Hospital.

KINLOCH, R. B., L.R.C.P., M.R.C.S., has been appointed House Physician to St. Thomas's Hospital.

KNOX, R. G., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory Acts for the Frashford District of Somerset.

MACKEITH, JOHN, M.B., C.M. Edin., has been appointed Medical Officer to the Exeter Postal Staff, vice J. Moore, resigned.

MARTIN, A. R., M.A., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

MENNELL, Z., L.R.C.P., M.R.C.S., has been appointed Clinical Assistant in the Special Department for Diseases of the Ear in St. Thomas's Hospital.

MORGAN, R., M.D., L.R.C.S. Irel., has been appointed Certifying Surgeon, under the Factory Acts for the Ballyfeard District of the Kinsale Union, County Cork.

NITCH, C. A. R., L.R.C.P., M.R.C.S., has been re-appointed Clinical Assistant in the Special Department for Diseases of the Skin in St. Thomas's Hospital.

POOLE, J. S., M.D. Dubl., has been appointed Certifying Surgeon under the Factory Acts for the Mallow District in the County of Cork.

RUTHERFORD, R. A., L.R.C.P., L.R.C.S. Edin., has been appointed Certifying Surgeon under the Factory Acts for the Manorhamilton District, County Leitrim.

SELOUS, C. F., L.R.C.P., M.R.C.S., has been appointed Assistant House Physician to St. Thomas's Hospital.

SLOSS, WILLIAM, M.B., Ch.B., has been appointed Junior House Surgeon to the Bootle Borough Hospital, Liverpool.

STEVENSON, ARCHIBALD, M.B. Glasg., has been appointed Junior Assistant Medical Officer to Hawkhead Asylum, Crookston.

TAKAKI, Y., L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

TAYLOR, T. S., M.A., M.B., B.C. Cantab., has been appointed Assistant House Surgeon to St. Thomas's Hospital.

TODD, CHARLES, M.D., D.P.H. Cantab., has been appointed Assistant Bacteriologist to the Antitoxin Department of the Jenner Institute of Preventive Medicine at Sudbury, Harrow.

WATKINS, J. W., M.D. Edin., M.R.C.S., has been re-appointed Medical Officer of Health for Earlestown and Newton.

WILLS, B. S., L.R.C.P., M.R.C.S., has been appointed Assistant House Surgeon to St. Thomas's Hospital.

WINGRAVE, WYATT, M.D., has been appointed Physician to the Central London Throat and Ear Hospital, Gray's Inn-road.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BELGRAVE HOSPITAL FOR CHILDREN, 77, Gloucester-street, London.—House Surgeon, for six months. Board and residence, with £5 allowance.

BERKSHIRE ASYLUM, Wallingford.—Second Assistant Medical Officer, unmarried. Salary £120, rising £10 annually to £150, with board, furnished apartments, and attendance, &c. £6 per annum allowed in lieu of liquors.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon, male. Salary £100 per annum, with board, residence, and washing.

CARLISLE DISPENSARY.—House Surgeon. Salary £150 per annum, with apartments (not board).

CITY HOSPITAL FOR INFECTIOUS DISEASES, Newcastle-upon-Tyne.—Resident Medical Assistant for one year. Salary £60, with board, lodging, and washing.

CITY OF LIVERPOOL INFECTIOUS DISEASES HOSPITALS.—Assistant Resident Medical Officer to the above Hospitals, unmarried. Salary £100 per annum, with board, washing, and lodging at the Hospital. Applications to the Town Clerk, Town Clerk's Office, Liverpool.

COUNTY ASYLUM, Lancaster.—Assistant Medical Officer. Commencing salary £125 per annum with the usual allowances.

COUNTY ASYLUM, Rainhill, near Liverpool.—Assistant Medical Officer, unmarried. Salary commences at £125, with prospect of increase to £250, with furnished apartments, board, attendance, and washing.

DENBIGHSHIRE INFIRMARY, Denbigh.—House Surgeon for 12 months. Salary £100, with board, residence, and washing.

DEVONSHIRE HOSPITAL, Buxton, Derbyshire.—Assistant House Surgeon. Salary £50 per annum, with furnished apartments, board, and washing.

DUNDEE ROYAL INFIRMARY.—Resident Medical Assistant for six months. Salary at the rate of £40 per annum, with board and washing.

FORT JAMESON, North-Eastern Rhodesia.—Medical Man to attend the officials and employees at Fort Jameson, the headquarters of the Administrator of N. E. Rhodesia, for 12 months. Salary £500 per annum and quarters. No allowances for travelling expenses. Apply, by letter only, to the Medical Officer, British South Africa, 15, St. Swithin's-lane, London, E.C.

GESTO HOSPITAL, Isle of Skye, N.B.—Resident Medical Officer. Salary £200 per annum, with free furnished house, garden, coals, light, and taxes. Apply to Mr. J. Simpson, Portree.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Junior House Surgeon for six months. Salary at the rate of £30 per annum, and board, lodging, and washing provided in the hospital.

HORTON INFIRMARY, Banbury.—House Surgeon and Dispenser. Salary £80 per annum, with board and lodging.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months, with an honorarium of £25.

HULME DISPENSARY, Dale-street, Stretford-road, Manchester.—House Surgeon. Salary £150 per annum, with apartments, coal, and gas.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—Non-resident House Surgeon for six months. Honorarium at the rate of £25 a year.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £70 per annum, with board and residence at the Infirmary.

MANCHESTER CHILDREN'S HOSPITAL.—Junior Resident Medical Officer for six months, unmarried. Salary at the rate of £80 a year with board and lodging. Apply to the Secretary, Dispensary, Garside-street, Manchester.

MANCHESTER CLINICAL HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—House Surgeon. Salary £80 per annum, with apartments, and board. Apply to the Secretary, 38, Barton Arcade, Manchester.

MANCHESTER ROYAL INFIRMARY AND DISPENSARY.—Honorary Assistant Surgeon.

NEWCASTLE-UPON-TYNE CITY LUNATIC ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £140 a year, rising £10 annually to £190.

NEWPORT AND MONMOUTHSHIRE HOSPITAL, Newport, Mon.—House Surgeon. Salary £100 per annum, with board and residence (no stimulants).

NORTH CAMBS. HOSPITAL, Wisbech.—Resident House Surgeon. Salary £140 per annum, with furnished house.

NORTH SHIELDS AND TYNEMOUTH DISPENSARY.—Non-resident House Surgeon and Dispenser. Salary £150 per annum, with an allowance of £20 a year towards house rent and taxes.

NOTTINGHAM GENERAL DISPENSARY.—Resident Surgeon for the Hyson Green Branch, unmarried. Salary £200 per annum. Special arrangement as to board, &c.

PARISH COUNCIL OF KINCARDINE, Ross-shire.—Resident Medical Officer. Salaries offered £52 10s. per annum as Medical Officer, £5 per annum as Vaccinator, with fees in lunacy in addition. Apply to Mr. D. Ross, Inspector of Poor, Ardgay.

PARISH OF ROUSAY AND EGILSHAY.—Resident Medical Officer. Salary £51 sterling. Apply to the Clerk of Parish Council, Rousay, Orkney.

PARISH OF RESOLIS AND DISTRICT, Ross-shire.—Resident Medical Officer. Salary £72 10s., with a good general practice.

PECKHAM HOUSE ASYLUM, Peckham.—Senior Assistant Medical Officer. Salary £200 per annum, with board, &c.

PRESTON ROYAL INFIRMARY.—Assistant House Surgeon. Salary £60 per annum, with board, lodging, and washing, &c.

ROCHDALE INFIRMARY.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, residence, and washing.

ROYAL ALBERT HOSPITAL, Devonport.—Assistant House Surgeon, for six months. Salary at the rate of £40 per annum, with board, lodging, and washing.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London.—House Physician for six months. Salary at the rate of £40 per annum, with furnished apartments, board, and washing. Also Resident Medical Officer for six months. Salary at the rate of £100 per annum, with furnished apartments, board, and washing.

ROYAL ISLE OF WIGHT COUNTY HOSPITAL, Ryde.—Resident House Surgeon. Salary £50, and fee of £10 10s. for the annual course of lectures to the nurses.

SHEFFIELD UNION WORKHOUSE INFIRMARY.—Junior Assistant Medical Officer, for the Workhouse Infirmary, Fir Vale, Sheffield, for one year, unmarried. Salary £75, with furnished apartments, board, and washing. Apply to the Clerk to the Guardians, West Bar, Sheffield.

ST. PETER'S HOSPITAL FOR STONE, Henrietta-street, Covent-garden, W.C.—House Surgeon for six months. Salary at the rate of £100 per annum, with board, lodging, and washing.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon for six months. Salary at the rate of £24 per annum, with board, washing, and residence.

TOTTENHAM HOSPITAL.—House Surgeon, for six or 12 months. Salary £50 per annum, with board, residence, and laundry.

WEST AFRICAN RAILWAYS EXTENSIONS.—Qualified Medical Officers required to accompany an important Special Survey Party leaving London early in October. Salary £40 to £50 per month.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Junior House Surgeon. Salary £50 per annum, with board, lodging, washing, and attendance.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician and also House Surgeon for six months. Board and lodging provided.

WOOLWICH UNION.—Assistant Medical Officer, for the Infirmary at Plumstead, unmarried. Salary £120 per annum, rising £10 yearly to a maximum of £150, with apartments, rations, and washing. Appointment subject to statutory deductions. Apply to the Clerk to the Board, Union Offices, Woolwich.

WHITBY UNION.—Public Vaccinators for the Whitby Sub-district and the Rural District respectively. Apply to the Clerk to the Guardians, Whitby.

Births, Marriages, and Deaths.

BIRTHS.

BIDWELL.—On Sept. 5th, at 59, Wimpole-street, Cavendish-square, W., the wife of Leonard A. Bidwell, F.R.C.S., of a daughter.

HAMILTON.—On Sept. 3rd, at Skew Gables, Cole-park, Twickenham, the wife of J. J. C. Hamilton, M.R.C.S., L.R.C.P., of a daughter.

MACPHERSON.—On Sept. 1st, at Henley-on-Thames, the wife of W. H. Macpherson, M.R.C.S., L.R.C.P. Lond., of a son.

MARTIN.—On August 29th, at Cranmere, Cosham, Hants, the wife of Staff-Surgeon J. McCardie Martin, D.S.O., R.N., of H.M.S. *Barfleur*, of a daughter—stillborn.

SIMPSON.—On Sept. 1st, at Kynance, Farnborough, Hants, the wife of Captain J. Tracy Simpson, M.D., R.A.M.C., of a daughter.

WALLIS.—On Sept. 4th, at Welbeck-street, London, W., the wife of F. C. Wallis, F.R.C.S., of a son.

WILLIAMS.—On August 28th, at Port St. Mary, Isle of Man, the wife of Stanley W. Williams, L.R.C.P. Lond., M.R.C.S., of a son.

MARRIAGES.

HAYMAN—JAMES.—On Sept. 4th, at the Parish Church, Weston-super-Mare, by the Rev. G. Shailcross, rector of East Harptree, William Speed Hayman, M.B. Lond., Thorncliffe, Clapham-park, to Lilian Emma, eldest daughter of W. H. James, solicitor, Fortfield, Weston-super-Mare.

HOWSE—HEAWOOD.—On August 28th, at St. Luke's Church, Torquay, Arthur E. Howse, M.R.C.S., of Falkland Lodge, Torquay, to Ethel Florence Logan, only child of Mr. James Heawood, of Shirenewton, Monmouthshire.

JAGO—ROBERTS.—On Sept. 1st, at St. Clement's, Barnsbury, Thomas Dinnen Jago, M.R.C.S. and L.R.C.P., eldest son of Thomas Jago, surgeon, Arundel-square, Barnsbury, to Annie Florence, second daughter of T. Andrew Roberts, surgeon, of Richmond-road, Barnsbury.

PAYNE—ALLISON.—On Sept. 1st, at St. Saviour's, Croydon, William Henry Payne, M.R.C.S., L.R.C.P. Lond., of Vesta-road, Brockley, S.E., to Ethel Frances Warrell, of Norbury-crescent, Norbury, youngest daughter of the late George Allison, Esq.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE WILES OF A QUACK.

DURING the recent fatal illness of a late eminent physician the following announcement appeared in an evening paper: "Sir A—— B——, M.P., is suffering from acute cancer of the liver and there is little hope of his recovery." This appears to have caught the eye of an enterprising quack medicine vendor who had not sufficient knowledge of the *personnel* of the medical profession to be aware of the patient's identity, for there is no allusion to it in the following letter, which was addressed to the House of Commons with a request that it might be forwarded:—

"DEAR SIR,—Noticing the above clipping I thought perhaps 'twould not be out of place to let you know that cancer of the liver has been cured repeatedly by medicine, and I will be happy to put you in the way of being cured if you feel disposed to depute someone to call upon me by appointment either by wire or letter. I have no object or motive in thus writing you other than a desire to help my fellow-creatures, more especially when laid up by a disease generally accepted as incurable. I am well known to a number of gentlemen of position, among whom are some who are cognisant of my successful endeavours to help my fellow-creatures when laid up by diseases hitherto considered incurable.

"Yours faithfully,

"G. W. ROBERTSON."

It will be noticed that the benevolence of this gentleman towards his fellow-creatures did not take him so far as to induce him to forward a sample of his wares gratis, and therefore we can hardly do him an injustice if we assume that one object of the deputation which he was willing to entertain on behalf of the patient would have been to arrange for a recompense in return for his intervention. While we do not suggest that the cure of cancer of the liver would not be a medical feat deserving recompense, we do protest against ill, and perhaps dying, persons, whose eminence may cause their condition to be a matter of notoriety, being solicited by strangers in this revolting manner. We feel that our protest is hardly likely to remedy the evil. Any effective remedy would not be easy to find, The writer of the letter words his communication with some care; he infringes no law that we are aware of; probably his nostrum would arrive, if purchased, under the cover of a Government stamp, and nothing in his communications would show any pretence of his being medically qualified. And as it is extremely unlikely that he would waste paper and stamps in offering to cure "diseases hitherto considered incurable" unless from time to time his offer were accepted, we cannot expect him to desist from a profitable, if cruel, trade on account of a mere protest. He may send his communication to some poor sufferer, until then ignorant of his or her hopeless condition, and so precipitate the end by shock. He would then be liable to penalties, but the circumstances would probably prevent the relatives from exacting them. We should like to hear from any of our readers whose patients have been honoured with the attentions of Mr. G. W. Robertson.

THE CARE OF AN EPILEPTIC.

To the Editors of THE LANCET.

SIRS,—I should be glad of your advice in placing a young girl, aged 17 years, in a suitable home. She is an epileptic and of weak mind and at times is seized with fits of violence, when she will attack her mother, her sole companion during the day, and kick or even bite, break panes of glass, ornaments, &c., and as she grows stronger is getting quite beyond her mother's control. I have thought of the epileptic colony but do not know the address or I should write for full particulars before troubling you. Your kind assistance will be thankfully received by

Yours faithfully, L.R.C.P. & S. IREL.

Sept. 4th, 1900.

*** Our correspondent had better communicate with the National Society for the Employment of Epileptics. The secretary is Mr. G. Penn Gaskell and the office is at 12, Buckingham-street, Strand, London, W.C. The Meath Home at Godalming might also suit the patient. The address is Westbrook, Godalming, Surrey, and the honorary secretary is Mrs. Leonard Burrows.—ED. L.

CORONERS' FEES.

To the Editors of THE LANCET.

SIRS,—I have recently had to give evidence at an inquest at Ipswich for which I was allowed the usual fee of one guinea for the inquest and one guinea for the post-mortem examination. The inquiry was held on a Saturday. The jury required a post-mortem examination to be made. This I did on the following day (Sunday) and was assisted most ably by Dr. Paterson of Ipswich. As the case was one of injury from some explosive it was unusually prolonged and exhaustive and most carefully conducted, as there was to be an adjourned inquiry in consequence of an official for the Government to attend at the adjourned inquest on the Friday following.

I attended at the offices of the Ipswich coroner at his request to give him a preliminary report of the result of the inquest on the Monday, on which day I was compelled to go to London. And on the Friday following I left London at 10 A.M. and gave my evidence at the adjourned inquest at Ipswich; being kept until the very last witness had given his evidence, I was not able to get back to London (Plumstead) until 11 P.M.—13 hours in all. The coroner, who is a lawyer and who was most complimentary to me, said that we were "very poorly paid as a profession" and "he would have been glad to have paid me a fee of 10 guineas, but they were not allowed to pay any fees for adjournments," and all he could allow me was my out-of-pocket costs for fares, thus leaving me without any remuneration whatever for loss of time, payment for substitute, refreshment *en route*, and loss of a midwifery case whilst away. I claimed 3*d.* per mile each way for fares, but even this was refused and I had to accept a smaller fee.

I am, Sirs, yours faithfully,

Putney, S.W., August 28th, 1900. A. S. MORTON, M.D. Durh.

WHO PAYS FOR DISINFECTION?

To the Editors of THE LANCET.

SIRS,—I enclose my card. Will you kindly oblige me with an answer in your next to the following. W., his wife, and four children go to the seaside in lodgings; about four days after arriving one child is taken ill with scarlet fever and is at once removed to an isolation hospital. W. and the rest of his family return home at once. The sanitary authorities have now sent W. an account for 25*s.* for disinfecting the lodgings and for disinfectants. W. objects to pay on the grounds that he never asked the inspector to call and disinfect and that the disinfection ought to be done free of charge by the sanitary authorities. W. had to pay the lodging-house keeper for the four weeks he took the rooms for, though only occupying them about four days. Can the sanitary authorities make W. pay the 25*s.* for disinfecting another person's house and for the disinfectants?

I am, Sirs, yours faithfully,

Sept. 3rd, 1900. PONTIUS.

*** Unless our correspondent's solicitor advises him to resist the claim we recommend him to pay the 25*s.*, though we recognise that to do so is a distinct hardship. He has a good case upon which to argue that he is not liable, but to attempt to establish the case he must have legal assistance. And he might after incurring further expense fail.—ED. L.

YEAST IN "PUTRID" OR TYPHUS FEVER.

A CORRESPONDENT sends us some extracts from the *European Magazine* for 1799 and from Buchan's "Domestic Medicine," 1824, giving instances of wonderful recoveries in cases of putrid fever after the administration of yeast. He asks whether the same treatment might not give good results among our troops in South Africa. Yeast was doubtless employed in cases of putrid fever, whatever that term meant, fairly frequently in the early years of the present century and for many years before. It was recommended by no less an authority than Stokes in 1816, but the general results did not come up to the expectations which had been formed. Apparently yeast does exercise a favourable influence in certain forms of streptococcal infection, such as furunculosis, and a correspondent writing in our issue of July 31st, 1852, claimed to have witnessed the good effects of yeast, given in doses of one tablespoonful in water three times a day, in epidemics of boils. It is perhaps possible that the putrid fevers of the older physicians may have been instances of mixed infection, and thus partly streptococcal.

MARRIAGE OF COUSINS.

To the Editors of THE LANCET.

SIRS,—I have lately been consulted as to whether first cousins may marry without fear of damage, mental or physical, to their offspring. The would-be contracting parties are, as far as I know, healthy and there have been no previous intermarriages between their families.

I am, Sirs, yours faithfully,

Sept 4th, 1900. G. C. P.

*** When cousins are healthy and have no proclivity to hereditary disease they may safely marry, but the existence of a strongly-marked predisposition to tuberculous or other taint should prevent such marriages. Marriage with cousins exaggerates the influence of heredity.—ED. L.

WANTED, A DIAGNOSIS.

To the Editors of THE LANCET.

SIRS,—A strong but nervous man showed me about six weeks ago a sample of urine which he had passed three days previously after he had been using a mowing machine for a couple of hours, from 3 to 5 P.M., on one of the hottest days which we had in July. The urine (three days old) seemed to contain blood, but I could not absolutely verify this on microscopical examination. He had no pain or other local symptom at the time or afterwards. A specimen passed on the day on which I saw him contained mucus. On the evening of that day he was sick and was purged and his skin was irritable. No nettle-rash developed and the stomach and bowel symptoms soon passed off on light diet. The later specimens of the urine contained at first a good deal of deposited phosphates, phosphates on boiling, and was iridescent, never alkaline, but never strongly acid, the specific gravity ranging from 1009 to 1020. At times it continued iridescent, deposited phosphates on boiling, was slightly hazy at bottom on standing, but all in a much lessened degree. There were no symptoms suggesting stone apparent. At first I gave him citrate of potash with buchu, later diluted phosphoric acid and nux vomica, with saline purgatives occasionally.

I am, Sirs, yours faithfully,

August 26th, 1900. INQUIRER.

"THE CORNUTOR OF SEVENTY-FIVE."

To the Editors of THE LANCET.

SIRS,—If any reader of THE LANCET happens to possess a copy of a small octavo pamphlet bearing the above title and would be kind enough to lend me the same for a short while I should be very much obliged. There were two editions, each of which was published in 1748. Either of them would suit my purpose, but I should prefer the second.

I am, Sirs, yours faithfully,

Brightwalton, Wantage, Sept. 1st, 1900. GEO. C. PEACHEY.

UNQUALIFIED PRACTICE.

"M.R.C.S." writes to us as follows: "I have on several occasions been asked by medical friends if surgeons are not allowed to cover or employ the unqualified, in what position are nurses at hospitals where they are constantly in the accident room doing minor surgery such as opening abscesses, introducing sutures, removing and replacing bandages in cases of fracture, &c., without any instructions or supervision—probably in scalp wounds sometimes closing and thereby concealing a fracture which might have been discovered by more knowledge and care."

We hope that there are not many hospitals in which the nurses act as our correspondent describes, "without any instructions or supervision," and if there are even one or two where such practices are carried on, all we can say is that they should at once be stopped. Medical students are specially exempt from any share in the offence of covering, it being taken for granted, as it is taken for granted in the case of nurses, that their work is done under supervision.

M.B.—A list of medical teachers will be found in THE LANCET of Sept. 1st, 1900 (p. 717). In our opinion any teacher who is accustomed to coach for the final examinations of the various examining bodies would be found quite competent. Our correspondent had better procure specimens of past examination papers and direct the attention of the tutor selected to the course of study therein indicated.

L.R.C.S. Edin.—If our correspondent will consult THE LANCET for Sept. 1st he will find the information which he requires.

Mr. P. McKay.—Our correspondent will find the list which he requires in THE LANCET of July 14th, 1900 (p. 143).

York.—There can be no objection to anyone who is qualified for it applying for the post.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 6th, 1900.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation Vacuo.	Maximum Temp. 6hade.	Min. Temp	Wet Bulb	Dry Bulb.	Remarks at 8.30 A.M.
Aug. 31	30·31	S.	...	108	77	56	58	60	Hazy
Sept. 1	29·94	S.W.	0·26	84	68	59	61	61	Raining
,, 2	30·12	W.	0·23	86	64	55	56	60	Cloudy
,, 3	30·37	N.E.	0·01	108	64	51	53	57	Cloudy
,, 4	30·41	S.W.	...	95	67	47	49	51	Hazy
,, 5	30·26	W.	...	104	71	50	53	55	Hazy
,, 6	30·18	N.W.	...	101	71	50	53	55	Fine

During the week marked copies of the following newspapers have been received: *Hertfordshire Mercury, Yorkshire Post, Bristol Mercury, Mining Journal, Herts Advertiser, Malvern Advertiser, Reading Mercury, Hertfordshire (Hemel Hempstead) Gazette, Local Government Journal, Southampton Observer, People's Journal, Surrey Advertiser, Leeds Mercury, City Press, Local Government Chronicle, Sanitary Record, Australasian Medical Gazette, Scotsman, Citizen, Architect, Builder, Times of India, Pioneer Mail, Liverpool Daily Post, Meath Herald, Lincoln Leader, Batley Reporter, Leicester Post, Manchester Courier, Birmingham Gazette, Bradford Observer, Pall Mall Gazette, Hull Daily News, Grimsby News, Newcastle Journal, Islington Gazette, Darlington Echo, Staffordshire Advertiser, Literary Digest, South Africa, St. James's Budget, Shield's Morning Mail, Sun, Ceylon Standard, Daily Telegraph, Poole Herald, Madras Standard, South Wales Daily News, Essex County Chronicle, Kentish*

Observer, Public Health, Norfolk Standard, Worcester Herald, Kensington News, Manchester Evening Mail, Eastern Daily Press, Devon Weekly Times, Lynn Advertiser, Salisbury Express, Physician and Surgeon, Springburn Express, Cambrian Times, Yarmouth Independent, Paddington Mercury, Stirling Journal, Hull Times, Malvern Advertiser, Horncastle News, Isle of Man Times, Weekly Free Press and Aberdeen Herald, Science Siftings, &c., &c.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (10th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

WEDNESDAY (12th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.)

THURSDAY (13th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.) University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

FRIDAY (14th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

SATURDAY (15th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (10th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Consultation. (Skin.)

TUESDAY (11th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. S. Taylor: Consultation. (Medical.)

WEDNESDAY (12th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—5 P.M. Dr. B. Bramwell: Clinical Lecture.

THURSDAY (13th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson; Consultation. (Surgical.)

FRIDAY (14th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. D. Grant: Consultation. (Throat.)

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1900, which was completed with the issue of June 30th, and the Title-page to the Volume, were given in THE LANCET of July 7th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1900 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

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The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

Communications, Letters, &c., have been received from—

A.—Dr. Aldr'ch-Blake, Lond.; Professor Clifford Allbutt, Cambridge; Mr. F. J. Allan, Lond.; Anglo-American and Continental Pharmaceutical Co., Croydon.

B.—Mr. J. Brind'e, Chorley; Mr. R. Benjamin, Nottingham; Mr. C. Birchall, Liverpool; Mr. L. Browne, Lond.; Bristol City Asylum, Registrar of; Bristol General Hospital, Secretary of; Bradford Children's Hospital, Secretary of; Bradford Royal Infirmary, Secretary of; Mr. W. F. Brock, Swansea; Dr. O. S. Brock, Colinton; Mr. E. M. Bowden, Lond.; Mr. Lennox Browne, Lond.; Dr. W. B. Bell, Wallasey; Mr. C. E. W. Bell, Southernhay; Dr. H. H. Borland, Glasgow; *Bristol Mercury*, Director of.

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